



April 1999
Volume 67 No 4

Amateur Radio

Journal of the Wireless Institute of Australia



Full of the latest amateur radio news, information and technical articles, including...

- Homebrew 813 HF Linear Amplifier – Part 2
- Improvements to Signal Generator Model Q-1312/SG-9200
- Making PCBs with your Computer
- Is the WIA Fading Away?
- 70cm Personal Handhelds – No Licence Required!
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Our cover this month

Harry Angel VK4HA

Representing those who served Australia in all conflicts.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Amateur Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service
Member of the
International Amateur Radio Union

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EDITORS COMMENT

Guest Editorial

Technological Changes

The other day I heard a man say "I'm not an Internet man. I don't even own a computer." This caused me to reflect yet again about the myriad of changes that have impinged on us all in the last decade or two.

This man had only 68 years, so he could have entered the computer age, especially as his background was the PMG and later in developing communications at the South Australian rocket testing site in the 1950s and 60s.

With so many changes, it is easy to get out of balance with the past, so the questions arise; one, is anything from the past still relevant and two, are new ideas necessarily better? In short form, I think that we would agree that the answers are yes and no respectively.

Does anyone care about the loss of CW skeds and watches from the Marine Service? How many of you, like me, saw the regular bulletins not only as a service to ships, but wonderful daily opportunities to practice CW reading? I accept that modern satellite communications may give generally better service (with reservations as highlighted by recent yachting rescues). It is only fair that these advances should be utilized.

I do, however, mourn the passing of yet another tried and true service, even if it was for a minority group in the community.

Yet I do not believe that CW will die - there will always be someone in the Amateur Service to keep it alive, even if they use computers to do it!

Ian Godsill VK3DID

Federal Contests Co-Ordinator

NEW WIA MEMBERS

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register over the past few months: -

L21159	MR A MCNAMARA	VK2ZJV	MR J E BROWN-SARRE
L21160	MR J D ROBINSON	VK3UQ	MR J HAMILTON
L21161	MR M ASHMAN	VK5PKW	MR K W WHITLOCK
L21162	MR W J BIRCHNELL	VK5ZLT	MR A NANKIVELL
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VK2AGN	MR A GEESON	VK1YPM	MR P E MCILLREE
VK2BGL	MR S G LEATHEAM	VK3ASI	MR H MICHAEL
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VK2IR	MR T HOROZAKIS	VK3MRV	MR R VIGH
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VK2KYT	MR A W HILDER	VK3XSC	MR P ARNETT
VK2MDT	MR D P TODD	VK5CC	MR C P CARROLL
VK2MSC	MR S D SALMON	VK5KBM	MR E B MACKENZIE
VK2TDW	MR J M REID	VK7VV	MR R R TAYLOR
VK2TPR	MR P R HULL		
VK2TTH	MR A E HAWKINS		
VK2WCR	MR E R MILNE		
VK2WDL	MR W D BRACK		
VK2YME	MR G J PETERS		

I apologise for the delay in publishing these names, unfortunately this was one job that went amiss in the change-over. I trust that with a few more next month we'll be right back in step again.

Bob VK4KNH



Comment

Federal President, Peter Naish
VK2BPN.

Need for constant vigilance

I MAKE NO APOLOGY for once again highlighting the need for amateur radio operators to be ever vigilant in watching for cases of intrusion into our bands.

An excellent example of this is given elsewhere in this issue of *Amateur Radio* that describes the launch of a non-amateur radio transceiver by a well-known electronics company. Nothing unusual about this except that the device operates in the 70cm band on a narrow frequency segment set aside for class licensees.

There is nothing to prevent this kind of intrusion occurring elsewhere in our bands. The WIA is mindful of this possibility and will continue to represent your point of view to the Australian Government authorities who regulate the spectrum in this country. We can only be fully effective if we have the total support of all radio amateurs. More than ever we need the strongest possible voice to ensure that these authorities are aware of our needs and will respond to them. I'll say it again — the real value in being a member of the WIA comes from the knowledge that you are supporting the team of dedicated volunteers who spend so much of their time working to maintain and improve our operating privileges.

With the rapid improvement in HF band conditions as we move towards another sunspot maximum, it is wonderful to be able to once more work the world with modest equipment.

This is the amateur radio that attracted me all those many years ago with the thrill of talking to stations thousands of miles away (yes miles in those days!) There is still that special feeling of delight when that rare station answers your call. Finally getting through the pile-up a few kHz up from that DX-pedition station after perhaps many attempts is indescribable. I bet you don't get that feeling on the Internet!

Let us hope that we can engender that spark of enthusiasm into some of the younger members of our community and encourage them to join this great hobby of amateur radio

Peter Naish, VK2BPN
WIA Federal President

WIA NEWS

WIA News Prepared, researched and compiled by
David Thompson VK2NH
Federal Public Relations Coordinator.

Program of Future Spectrum Auctions Released

The Australian Communications Authority (ACA) has released its *Program of Future Auctions*.

The Program lists radiofrequency bands likely to be auctioned in Australia in the future, with an indication of the priority and possible applications of each band.

ACA Chairman Tony Shaw said the Program was intended to provide information for current users and potential purchasers of radiofrequency spectrum, and other interested parties, about the bands likely to be considered for spectrum auctions.

"The ACA is keen to provide as much information as possible about when and how spectrum will be allocated.

This Program provides participants in the Australian communications market with an indication of the ACA's thinking about particular bands, and the likely timeframe of future auctions."

Mr Shaw emphasised that the Program does not replace the normal consultation process the ACA undertakes before initiating price-based allocation of any band.

The Program of Future Auctions is based on an ACA discussion paper released in 1998, which set out preliminary views on possible bands for future auction.

This Program reflects comments received in response to the paper, and includes discussion of criteria used by the ACA in deciding whether or not a band should be considered for auction.

The Program is designed to be a three-year rolling program, updated on an annual basis.

The ACA welcomes comments on the bands listed in the Program, other bands that might be considered for future auction, or any relevant matters.

The *Program of Future Auctions* is available on the ACA website at www.aca.gov.au under Spectrum Auctions.

New Standard to Limit RF Exposure

The Australian Communications Authority (ACA) has introduced a new regulatory framework setting electromagnetic energy exposure limits for the general public from mobile phones and mobile phone base stations. The range of devices covered by the standard will be progressively extended to eventually cover all types of radiocommunications transmitters.

Consumers can rest assured that they have protection from the use of radiocommunications equipment. The exposure limits have been determined in response to considerable community interest in the possible adverse health effects associated with the use of radiocommunications equipment such as mobile phones, the siting of mobile phone base stations, and other installations utilising radio frequencies.

The mandatory standard introduced on 1 February, 1999, includes human exposure limits from the Australian Standard AS/NZS 2772.1(Int):1998. This standard applies to the exposure of people to radiofrequency fields which are produced or radiated, either deliberately or incidentally, by the operation of devices or equipment.

Within the regulatory framework, responsibility for compliance with the mandatory standard will fall on manufacturers or importers of certain devices as well as holders of ACA radiocommunications licences. Responsibility for the compliance of radiocommunications installations (for example, broadcasting transmitters or mobile phone base stations) will rest with the licensee.

The effect of making this mandatory standard under the provisions of the *Radiocommunications Act 1992* is such that it will be an offence to knowingly supply, operate or use any radiocommunications transmitter that does not meet the mandatory standard. Manufacturers and importers will be required to demonstrate compliance with the standard, prior to being allowed to place a product on the marketplace. They will need to make a declaration that their product complies with applicable standards, create and maintain a compliance folder of documentation supporting their claim, and label devices. Owners and operators of radio-

communications facilities will also be required to demonstrate compliance with the standard prior to issue or renewal of a radiocommunications licence.

This requirement will be written into the licence. Compliance with the mandatory human exposure standard by manufacturers, importers, and operators of specified devices will be enforced through random audits of compliance documentation by ACA officers as well as through complaint investigations.

Background

The ACA has provided a background on the *Electromagnetic Radiation Regulatory Regime* which is designed to provide a better understanding of the need for the energy exposure limits Standard. It is reproduced here in relative detail for your information.

In recent years, use of the radiofrequency (RF) spectrum has increased exponentially. Increasing demand for personal mobile communication services, such as handheld radio-telephones (mobile phones) has seen radiocommunications transmitters expand from being used for specialised applications to becoming widely available consumer items.

The telecommunications sector has been largely responsible for this expansion, and as usage of radio communication devices increases, concerns continue as to the long term health consequences of the use of radiocommunications.

All radiocommunications transmitters emit electromagnetic radiation (EMR). Exposure to high levels of RF EMR can result in tissue heating and exposure to excessive levels is known to cause such acute adverse health effects as shocks and burns. These effects are well documented and are known as "thermal effects". However, there is no conclusive evidence that long term exposure to low level RF EMR is associated with adverse health effects such as cancer.

Internationally there is an increasing trend to regulate RF EMR. The United States of America already has some regulations in this area, and the European Union and Japan are currently considering limits for RF EMR.

Until the beginning of 1999 the Australian Communications Authority (ACA) regulated human exposure to EMR from mobile telecommunications devices, including handsets and base stations, under the *Telecommunications Act 1997*.

However, these devices are only a fraction of the total of radiocommunications transmitters in the community, and are not necessarily the devices likely to exceed the limits of human exposure standards. Legislation enacted on 1 July 1997 provided

additional powers to the ACA to mandate standards to protect the health and safety of persons who may be exposed to emissions from radiocommunications transmitters.

To enable implementation of these powers the ACA has consulted both extensively and in depth with its stakeholders to develop a workable regulatory regime to regulate EMR exposure.

At the basis of the ACA standard are the human exposure limits of the Australian standard AS/NZS 2772.1 (Int):1998 together with a methodology for testing the compliance of mobile phone handsets with the Specific Absorption Rate (SAR) limits of the standard.

Implementation of the EMR framework is a phased approach. The ACA is applying the non-occupational exposure limits of the standard first to devices in the following order:

- 1 February 1999—mobile phones and base stations;
- mid-1999—low power radiocommunication transmitters; and
- late-1999—remaining radiocommunications transmitters.

The mechanisms for compliance with the requirements in the mandatory standard apply at point of supply to the market for specified devices and to radiocommunications licences.

Compliance with the mandatory standard is required by manufacturers and importers of devices fitted, or intended to be fitted, with an integral antenna and intended to be used in close proximity to the body. For these devices (for example, mobile and cordless phones) there are two categories of compliance depending on whether the device meets the non-evaluation criterion specified in the standard. If the device requires evaluation, this must be according to the methodology in the standard.

Compliance is also required of operators and users of all transmitters presently licensed under the Radiocommunications Act including telecommunications and broadcasting transmitters.

In general, two categories of compliance apply to licensing conditions depending on an assessment of the likelihood of the transmitter exceeding the limits in the standard. Where testing is required this must be performed in accordance with the standard, otherwise, compliance may be evaluated using appropriate engineering charts and tools.

All compliance requirements are being harmonised with existing ACA regulatory requirements to minimise the regulatory burden on industry.

For more information about the mandatory standard, or to obtain a copy of

the EMR information paper and Fact Sheet, please contact Mr Ian McAlister on (02) 6256 5451.

The ACA will acknowledge all written and electronic communications, including complaints concerning breaches of the EMR regulations, within seven days and report on the progress of investigations.

Enquiries relating to the Health Exposure Standard AS2772.1 (Int): 1998 should be directed to the Standards Association of Australia on telephone (02) 9746 4700.

Amateur Radio Assists in Austrian Avalanche Emergency

Hams in Austria assisted in the wake of the series of avalanches that hit the snow capped Alps. And the nation's communications regulators are asking radio amateurs around the world to keep off two frequencies until further notice.

The two frequencies are 3.685 MHz on 75 metres and 7.085 on 40 metres. According to an Austrian news release, they are being used extensively in relief efforts in the mountains by hams involved in snow disaster relief communications. Austria would therefore like for these two frequencies to be kept clear of all non-avalanche related communications, 24 hours a day, seven days a week — until further notice.

Via Austria Telecommunications Authorities

Sunsat is in Orbit

From Amateur Radio Newline comes the story that after several weeks of frustrating delays, South Africa's SUNSAT Satellite was placed into orbit on February 23rd. A Delta II Missile carried SUNSAT and 2 other spacecraft lifted off from Vandenberg Air Force Base in California

The SUNSAT Satellite was designed and built by engineering students at Stellenbosch University in South Africa. At 132 pounds weight, the spacecraft is the country's first satellite and the first ever built in Africa. It contains Amateur Radio equipment designed to support digital and voice communications. An onboard BBS will allow hams to store and forward files and messages. Meanwhile the satellite parrot system will receive and repeat voice on 2 metres

SUNSAT will take images of South Africa from orbit to monitor agriculture and the environment. The satellite will also collect data to more accurately map the earth's gravity field. Onboard experiments from 2 South African high schools will detect atomic particles and vibrations made by the satellite. SUNSAT is expected to remain in orbit for about 6 years.

World's Most Respected Radio Amateur SK

The man described as the world's most respected radio amateur, King Hussein of Jordan, JY1 died on 7 February 1999 at 63.

The Middle East's longest serving ruler, Jordanian King for 47 years, was a senior statesman in determining world affairs, especially in his troubled region. His son, Abdullah, 37, succeeds him. Hussein had earned a reputation as a catalyst for peace and as a conciliator in the Middle East.

Reportedly King Hussein had been active in recent months from the United States whole being treated for the cancer, which claimed his life. A QSO with JY1, who was a life member of the ARRL, was considered by many hams to be both an honor and a privilege. His elegant QSL card was prized.

ARRL Executive Vice President David Sumner, K1ZZ, has called him "an enthusiastic radio amateur whose support was invaluable to us in obtaining new amateur bands at the 1979 World Administrative Radio Conference." The WARC-79 resulted in Amateur Radio's gaining the 30, 17, and 12-metre bands. That same year, JY1 was featured in the film, *"The World of Amateur Radio."* Hussein regarded his 1983 contact with Owen Garriott, W5LFL, on board the Space Shuttle Columbia, as a high point in his Amateur Radio activities. He was also was involved in early satellite experiments.

Former US Ambassador to Lebanon and Iran, Armin Meyer, W3ACE, also recalled Hussein in *The Washington Post*. "JY1 has for decades been promoting peace and good will among quite ordinary people." As Meyer put it: "For the king, ham radio was a different world, a community of diverse people."

All of the Jordanian royal family automatically have Amateur Radio privileges in Jordan. King Hussein's widow—the American-born Queen Noor—is JY1NH. His brother, former Crown Prince Hassan, is JY2HT, his cousin, Prince Raad, JY2RZ, chairs the Royal Jordanian Radio Amateur Society.

Via Jennifer Gagne, N1TDY, ARRL & RSGB



JY1 at his hobby

WIA Federal Statement

By Peter Naish

Class licence operations on the 70-cm band

FOLLOWING CONCERNS RAISED by WIA about a licence-free handheld transceiver that operates on the 70-centimetre band, retail giant Dick Smith Electronics (DSE) has stated it believes the unit won't cause interference to amateur operations.

The 20-channel transceiver sold by DSE is the first and latest in a range of low powered devices permitted under a class licence to operate on part of the 70-cm band — an allocation shared by a number of radio services including the amateur service.

WIA Federal President, Peter Naish VK2BPN, said the first the WIA heard about the transceiver was through a magazine advertisement. It then contacted Chris Ayres of DSE to seek clarification of the matter.

Mr Naish said, "In talking with Chris Ayres I expressed the WIA's surprise that this product had been launched without prior discussion considering the good relations that exist between the WIA and DSE.

"We need to work together to foster our separate but complementary interests in amateur radio and avoid the possibility of damage to those interests.

"I advised Mr Ayres that I could foresee some antipathy towards DSE if the impact of this product's availability in the general market was not properly understood."

DSE has advised the WIA that the transceiver is:

- A product meeting a demand for short haul (intra-building) wireless communications, and an alternative to the very cluttered 40MHz band also used for this purpose under a class licence
- Priced at \$150 to suit the non-commercial and residential market
- A 20-channel hand-held set with 20mW EIRP output power and is spectrally clean with no provision for an external antenna
- Asian made to DSE specifications which include channels in the simplex section of the WIA band plan (433.750-434.250MHz) so as to be clear of the amateur radio service repeater input frequencies

Chris Ayres says that he is very conscious of the WIA's concern but believes the product as sold will not (unless abused) interfere to other services outside the narrow range of frequencies programmed into it.

The WIA has agreed to keep him informed about the WIA's concern and let him know about any substantiated cases of interference to amateur radio services due to this product.

Mr Naish said, "If the ACA had taken note of the WIA's complaints regarding the establishment of a class licence in the 70-cm band, none of this potential for interference would have occurred."

The Amateur Service is a *secondary* user of the band. The Australian Communications Authority (ACA) advised the WIA in 1996 that it would declare a class licence for low powered devices on the band.

The WIA at the time expressed its concerns about the compatibility of low powered devices on the band and in particular those frequencies in the Amateur Repeater sub-band and the Amateur Satellite Service sub-band.

The ACA's declaration of the class licence was seen as a response to pressure from commercial interests wanting to legitimise European products on the Australian market, such as wireless headphones, wireless speakers, and radio controllers such as RF key locks for vehicles.

Mr Naish said the WIA's concerns about the class licence being "open" in terms of types of emission were raised unsuccessfully with the ACA in 1996/97.

Peter Naish said, "The class licence makes no constraint on the type of emission. The only restriction is a limitation in output power.

"It is therefore entirely legal to sell and operate devices for two way communication under this class licence, making it a defacto citizens band.

The class licence allows for 20 mW ERP in a band 433.050-434.790 MHz. Users of equipment are not able to claim protection from interference they may experience from other users of the band which are the Amateur Service, Radiolocation Service and Department of Defence.

First to take advantage of the class licence were devices used for the transmission of data, and radio control devices including RF key locks for vehicles.

Last year 130 imported European cars landed at Elizabeth in SA fitted with 70-cm radio key locks that suffered interference from an Amateur repeater.

IMPROVEMENTS TO SIGNAL GENERATOR MODEL Q-1312/SG-9200

Drew Diamond, VK3XU

45 Gatters Rd
Wonga Park, 3115.

A SIGNAL GENERATOR ENABLES the experimenter to do all sorts of useful tests and measurements. In recent years we have been fortunate by able to buy surplus laboratory-grade sig. gens. at very reasonable cost. They are generally of the "boat-anchor" variety. The beautiful Hewlett Packard model 606(suffix) is a typical example. However, for the worker with limited workshop space, these take up rather a lot of bench area.

You may be thinking about purchasing- or already own, one of the neat little generic "signal generators" of the type sold by Dick Smith, and others, model Q-1312. It has a few limitations (as in most things- you get what you pay for). Nor does it qualify for the illustrious title of "signal generator"- it is simply a signal source. Nevertheless, in the hands of a competent operator, the Q-1312 is capable of doing some serious work.

Let me list a few applications: In receiver work, as a signal source/VFO in transmitter development, as a signal source to drive inductance/capacitance bridge(s), as a source in antenna, feedline and impedance bridge measurements, and as the local oscillator for a "poor man's" spectrum analyser (more on these topics, it is hoped, at a later date).

Briefly, frequency range is from 100 kHz to 150 MHz in six bands. Internal amplitude modulation is fixed at 1 kHz, about 30 % depth, with provision for external AM. The audio signal is also ported to the front panel. A handy crystal check circuit is provided, which may be mixed with the main signal to produce $f_1 \pm f_2$ products. The unmodulated RF output waveform is nicely sinusoidal over the HF range, and the AM envelope has a near "text-book" appearance. Maximum output is specified as "at least 100 mV (my sample gives 220 mV or 1 mW/0 dBm) across 50 ohms- a very appropriate level for a variety of applications. After a reasonable "settling down" period, HF frequency stability is adequate for ordinary tests, even at 28 MHz.

One of the most striking inadequacies is the lack of any fine manual variation of frequency, especially above about 1.8 MHz. I spent hours

on this problem, trying to fit some form of fine control using tuning diodes, varactors and so on, and met with only limited success. The frequency could be made to vary by an appropriately small amount at the high end of each range, only to find that there was little or no variation at the low end (due, probably, to

the very high C:L ratio of the oscillator tank at the low frequency end of each range).

What to do? In the end it was realised that the amateur's need for a fine control is generally felt above about 3 MHz, to perhaps 30 MHz (for sneaking up to, through, and out of crystal filters for instance), which is included in ranges D and E. The oscillator coils are placed around the range switch as shown in Photo 1. A small variation in inductance, rather than capacitance, was thought desirable. Shown is one approach (stop reading now if you cannot bring yourself to drill holes in factory-made equipment). A powdered-iron slug (from an old style IF transformer) with brass spindle is soldered to the metal lug of an IRC potentiometer. (See Photo 2). The slug is arranged so that it can be swung in proximity to the D and E range coils (Photo 1.)

There is room for the pot to be mounted upon the front panel, below the Frequency

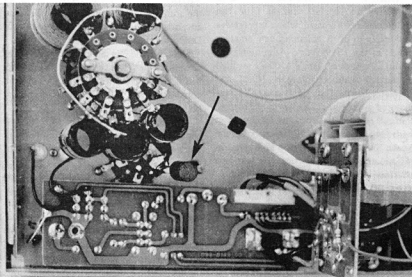


Photo 1 - Pot/slug assembly installed

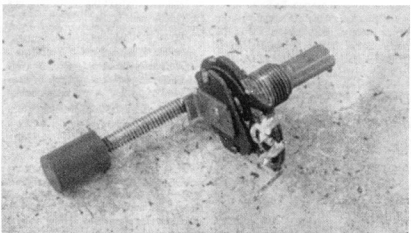


Photo 2 - Potentiometer Mechanism with the Slug attached.

Range switch, and to the left of the crystal socket. See (Photo 3). In order to drill the hole in the panel, firstly, unsolder coils D and E. Don't go straight in with a 3/8" drill, but carefully drill from the front in stages to about 1/4", then hand-ream to 3/8". Mount the modified pot/slug assembly, then replace the two coils. Check that you can obtain a smooth interference-free swing of the slug between the D and E coils and without striking the circuit board. Melt a bead of wax onto the coils where the slug touches each coil to prevent it from actually contacting the windings.

The second modification is less important. Being at the end of a long rural line, my mains voltage varies all over the place- from 210 V to 250 V (seriously). The oscillator section runs from a stabilised supply rail, but the output amplifier is powered from the unregulated +18V rail. Mains voltage variations do show up as frequency variations under some circumstances. There is also a trace of 100 Hz FM. Regulating the +18 V rail significantly improved matters. I used a common and cheap regulator chip type 7805 (nominally +5 V) with external divider resistors set to deliver +18 V.

If you find this improvement necessary; remove the 100R 1/2 W resistor R27, whose holes may now be used for the input and output legs of the regulator chip. The 470R 1/4 or 1/2 W resistor may now be fitted between the floating (Common) leg and the left spare hole enclosed in the semi-circle. The 820R 1/4 or 1/2 W resistor may be fitted between the common leg and a spare ground hole, as shown in Photo 4. Double check your component locations, values, and wiring before switch-on. If you have an oscilloscope; check that the 7805 is not oscillating by probing the +18 V rail. If so, fit a 100 nF capacitor between input and Common, and another between (+) and Common of the chip.

Battery operation was considered, but a DC supply requirement of 18 V at about 65 mA makes a heavy demand for ordinary dry cells. For field work, consider a polarised two-pin socket for external battery connection.

The third most obvious deficiency is an inability to reduce the signal to a sufficiently small value to permit microvolt and sub-microvolt receiver sensitivity measurements. Nor is the output level metered. In a future issue I hope to tackle this problem, and also go on to describe some more amateur applications for this versatile test instrument.

Further Reading:

1. Test Equipment for the Radio Amateur, C. Smith, G4FZN. RSGB Publications.
2. Low Cost RF Test Oscillator, J. Rowe, in Electronics Australia, May/June '96.

ar

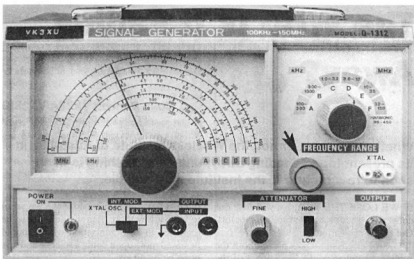


Photo 3 - The Q-1312 with fine frequency control fitted (arrowed).

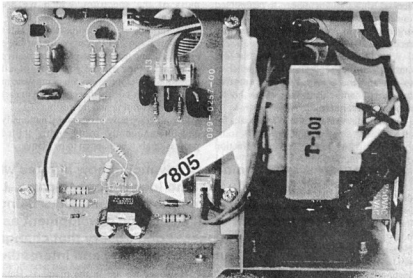


Photo 4 - Placement of 7805 (arrowed).

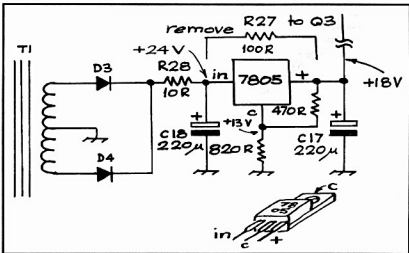


fig 1 - Q-1312 Power Supply Modification

The WIA- Is It Fading Away?

John Bennett VK3ZA/VK2SIG
PO Box 48 Dunkeld Victoria 3294

Whether we like it or not, the Wireless Institute of Australia, in its present form, is fading away; unless something is done soon to re-structure it, the Institute may well die.

IF WE LOSE THE WIA, we will lose our collective voice as amateur radio operators. Our hobby can't afford that loss.

Lots of discussion takes place about the future of amateur radio, the impact of the Internet and loss of amateur spectrum access. Little thought appears to be directed toward preserving the only amateur radio organisation in Australia that is currently recognised by Government.

What is needed urgently is a less cumbersome, less complex, less expensive-to-run and more widely representative Institute to handle the affairs of our hobby nationally and internationally.

As things now stand, the WIA speaks for all Australian amateur radio operators, some 16,000 of us, while only having a fraction of that total number in its membership.

That doesn't mean that 16,000 amateurs are not well served by the WIA. The WIA negotiations with Government are for all amateurs, but the Institute will steadily lose credibility as more and more Hams lose interest in belonging.

The WIA urgently needs restructuring and increasing in strength. The present form is largely lacking in appeal and interest to amateurs and certainly is not conducive to attracting new members to its ranks.

I first joined the WIA in 1948 and subsequently served on the Divisional Councils of the VK2 and VK3 Divisions. I produced the VK2 weekly broadcast; have been President of the Canberra Radio Society (now the VK1 Division); was a member of the WIA Federal Executive and have written many editorials for "Amateur Radio" magazine over a considerable period. I believe I have sufficient 'feel' for the Institute to make some observations.

The WIA has never, in my experience, been a particularly cohesive organisation. Nevertheless, it is far less cohesive and more factional now than ever before. Most organisations of individuals of common

interest have their primadonnas - we seem to have a few more than would perhaps be expected in an organisation which should be based more upon being a science and less upon being an art.

Today we face more pressures to acquire parts of the spectrum, which we are privileged to use, than at any earlier time.

Technology is advancing now at rates with which most of us can no longer hope to cope. Long gone is the era of innovative amateurs being in the forefront of all electronic development as amateurs were in the past. I don't decry that change: it makes our hobby exciting and interesting.

Certainly we have in our ranks, nationally and internationally, many highly skilled professionals who happen to be Hams.

Technology is advancing now at rates with which most of us can no longer hope to cope. Long gone is the era of innovative amateurs being in the forefront of all electronic development as amateurs were in the past. I don't decry that change: it makes our hobby exciting and interesting.

However we are in the main, as Ham Radio enthusiasts, increasingly 'amateurs' in the whirlwind of technological communications developments. This is the era of the highly skilled professional.

Unfortunately, the WIA is, in many ways, becoming increasingly 'amateurish' rather than 'amateur concerned'.

The very structure of the WIA is archaic and nobody seems prepared to make the move to change it. The bickering within and between the state Divisions and WIA Federal and the all-too-public clashes within the organisation are doing a great disservice to our hobby and to the one organisation in the country that can speak on our cohesive behalf.

It is almost miraculous that the Australian Securities Commission does not yet seem to have been attracted by the inept antics of the WIA in its seeming inability to effectively administer itself as a registered company.

Why do we need the present structure of the WIA? We certainly need our institute as a responsible body to be the voice for our hobby but, with the exception of some present divisional services, the Divisions seem superfluous.

I don't claim to have the solution to the woes of the WIA but I do have great concern for the need for it to continue. I also have a few thoughts which may warrant discussion, consideration and, perhaps, implementation.

Firstly, the structure and role of the WIA should be examined and reported upon by a competent management consultancy, completely outside the WIA. Their charter would be to come up with a viable, simple, economical (bearing in mind our 'hobby status') proposal to restructure the Institute with a single national office - wherever that may be.

Doubtless, the anguished screams of divisional protest will be audible already!

Why should the divisions continue to exist? Given a new national WIA Headquarters, those of their few functions that would still be needed could continue; drawing upon the wonderful band of dedicated volunteers who currently make things work.

Appropriate funding would be made available from HQ as required for such items as repeater licence fees etc.

The Divisions are costly to run and with the possible exception of repeater facilities (particularly in VK3) they provide few benefits for their local membership.

Radio clubs throughout the country provide more

service, interest and involvement for their members than does the WIA. The total membership of the about 150 radio clubs and groups in Australia will almost certainly outnumber that of the WIA! The latest published list of radio clubs affiliated with the WIA lists 126 clubs.

How many of their members actually belong to the WIA in their own right? It is very hard to know but a broad general inquiry indicates that many certainly do not.

Most amateurs, who really think they belong to the WIA, are members only of their State Division. The WIA at Federal level is a skeleton whose flesh is made up by the disparate bits and pieces of the seven state divisions, each of which is represented by ONE Divisional Councillor. In reality, the WIA exists in name only as a 'Not-for-profit' public company under Section 383 of the Corporations Law.

Let's restructure the whole sorry mess, which even some Councillors have admitted they are at a loss to understand. Let us have one WIA body, based in Canberra where it can be in close contact with Government and the Australian Communications Authority - probably our greatest collective need.

Dispense with the Divisions and have all clubs and their members as members of the new WIA at cost lower than the present subscription rate.

Scrap "Amateur Radio" magazine. Its production and distribution cost and lack of advertising support scarcely warrant its continuation. By mutual arrangement, buy, say, four pages periodically (perhaps monthly or quarterly) in issues of one or more popular radio magazines. "Radio & Communications" would be a 'must'.

These pages would easily cover the purely WIA matters currently contained in "Amateur Radio". The cost would be considerably less than publishing "AR". Getting the magazine would be at the option of the person buying it. It would also have the impact of putting the amateur radio hobby and the WIA before a larger target audience.

Drop the Divisional broadcasts in their present form. They are often largely repetitive in their content. Co-ordinate all material from all States and clubs throughout Australia and broadcast it from one point only. "WON'T WORK!" ... I hear people say. Oh yes, it will! Having travelled the length and breadth of our wonderful country, over many years while in the Army and after retiring, I've never failed to hear the New South Wales Division broadcast on one or more of the eight High-Frequency outlets they use; even in times of poor propagation.

Add to that their half-dozen VHF and UHF channels and the fact that a lot of country regions relay on 2 metres and 70 cm. Also, the Sunday morning broadcast is repeated that evening.

An approach should be made to the ACA to obtain their views on restructuring the WIA broadcast arrangements to authorise rebroadcasting an appropriate one of the VK2 broadcast frequencies on local repeaters in other States.

If this came about, I would be prepared to start this system by coordinating the broadcast and preparing a tape for use in Sydney each week. I have nearly 50 years' experience in editing, preparing, reading and recording news broadcasts and tapes for local and overseas use.

The WIA is steadily declining in membership and many reasons no doubt account for this - not least among them is the perception that the Institute seems to do

little for people in exchange or their membership fees; or than produce "Amateur Radio" magazine. Not every member is prepared to pay for that; preferring to buy something else or buy nothing at all.

What would you say to \$20.00 per head per year to belong to both your local radio club AND the WIA? A percentage would go to the club and the remainder to the WIA? Wouldn't this concept have much more appeal to the amateur radio enthusiast? The WIA would receive new memberships of those who now belong to clubs but not to a WIA State Division.

The reduced operating costs brought about by disbanding the Divisional structure, ceasing publication of "Amateur Radio" and reduction of travelling costs for WIA 'talk fests' would seem to make a reduced membership fee practicable.

Of course this is based on the membership of clubs remaining at about their present level with a possibly (although not in all cases) increased cost to the club member.

There are of course many other facets of our hobby that require consideration, emphasis and inclusion. Those, which come immediately to mind, include satellites, WICEN, digital technology and spectrum questions.

While not dealing with any of these here, I'm not ignoring their significance. However, the first priority as I see it is to find the right formula for the WIA itself.

The WIA, to use that generic term, is bleeding to death. If it should die, then the chance of replacing it with a cohesive organisation to speak for all amateurs appears slim. The 'look after number one' syndrome has been steadily gnawing away at society and in many ways this has impacted upon the Institute.

The WIA cannot go on the way it is today. If it does, it will do so at its own peril.

The Executive must grasp this unpleasant nettle and overcome the inertia that has plagued the Wireless Institute of Australia for far too long.

As a final point of absolute heresy, perhaps the name should also be changed at the same time. Maybe the words 'wireless' and 'institute' smack of ancient history. Perhaps they are seen by younger generations as outmoded and no longer appropriate; and deter them as being 'fuddy-duddy'.

After all, many organisations, large and small, have changed their names in recent years and we've soon learned to identify them by their new, often shorter and catchy title. Why not the WIA?

How about "Amateur Radio Australia"?

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Speaking of Hamfests, the Icom website is a great way to keep up-to-date with all the upcoming events. If you want to know the exact dates for hamfests in the near future, such as Bendigo and Mount Gambier, visit us soon. Our website is continually updated with all the latest information.

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Make PCBs with your computer.

Joe Rotenberg VK3BBN

20/104 The Avenue
Parkville 3052

Introduction

Over the years there have been a number of ways of connecting together electronic components to make circuits.

In the 1920's radios did not have many components. So components were bolted to the chassis and connections were made with heavy wires between screw terminals. Later soldered joints replaced the screws.

A popular method in the 1930s, by which time components had become lighter and more numerous, was the "tag strip" construction method that consisted of rows of terminals with components soldered between them. This was a useful technique for semiskilled workers to assemble radios, as they didn't need to understand the circuit.

By the 1940s, when the gain and top frequency of each stage had risen, tag strip layout was prone to produce oscillations in the circuit and so "point to point" (or "rats nest") wiring became popular. Wires, components and terminals were connected from component to component according to the requirements of the circuit.

This remained the preferred system till the advent of the transistor radio in the 1960s.

From that time, "printed circuit" construction, where the components are soldered onto an etched copper foil pattern on a piece of insulating board became the norm and remains so for practically all electronic equipment to this day.

Unfortunately, however, the early printed circuit design methods were very time consuming.

I remember laying out PCBs as a vacation student at the Weather Bureau in the early 1970s. We had a large piece of plastic sheet fixed to a table to which we attached lengths of black tape for the tracks and washer shaped pads for the connections. Later, this pattern would be photographically reduced and etched on the copper foil. The method was slow and prone to errors, and so it was usual to build a prototype circuit on matrix board first to get the bugs out.

With the advent of the computer all this has changed. Professional PCB drafting

software can automatically lay out a circuit from the circuit diagram.

It is no longer necessary to build a test circuit on a matrix board first; the board is assembled as a PCB straight away and if there are any mistakes, some keystrokes on the circuit diagram fix them immediately and off we go again.

Full Professional software is very expensive and not readily available to the average amateur. "Shareware" software is available but you will have to learn to use it. Fortunately, we can make do with the software that comes with the standard "windows" operating system. The result is, in my opinion, an easy and less time consuming method of constructing circuits. This article describes how to draft a PCB with a computer on a low budget.

What kind of computer do I need?

To make life easy for yourself you need a computer that will run "Windows", so this means at least a "386" machine. Make sure it will take 3-1/2 inch discs and check that it has "Windows". When you turn it on you should get a pretty picture with a sign saying

"Windows". If all you get is "<>" on a black screen then type "win" and press return and see if the picture appears then.

Don't worry about how big a memory it has or how fast it is; if it will run "windows" it's OK for this job.

You need to find a wordprocessor somewhere in the system. This will go by the name of "write", "word", "works" or something of that sort depending on what software has been installed on the computer. If you're not comfortable about finding files and all that kind of computer talk get your grandchildren to show you how it's done!

After you've found the wordprocessor see if you can get it to "insert" a drawing. At this point you should get a screen with some coloured boxes down the bottom and some more boxes on the left side. That is the drawing software, "MS Draw" that you create your drawing with. When you are finished call up "exit" and follow the instructions.

Some hints.

MS Draw enables you to set patterns onto a grid. This is very useful for integrated circuit patterns. However, one problem: the grid is 12 to the inch, whereas integrated circuit legs are 10 to the inch. Not a problem. Use the grid anyway then when you're finished adjust the scaling to 120%. Actually, it's better to draw it double size and then set the scaling to 60%.

I find a line width of "4 point" works best for the connections but power or RF tracks may need to be wider. The pads can be made by drawing a small white circle within a larger black circle and then using "copy", "paste" and "group" to make a complete pad that can be moved around the screen to

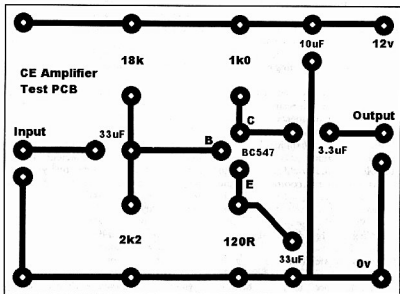


Fig1 A simple example pattern showing a CE Amplifier demonstration circuit.

the desired location. Use "snap to grid" to fix the spacings.

Once you've got your PCB drawn out on the computer screen, save it on a disk and take it to a printing place, secretarial office or such. For a couple of dollars or less they will make you an overhead transparency of it. Don't forget to say it's black and white, otherwise they will charge you for colour.

Then follow the procedure for making PCB's from a transparency. You can buy all the chemicals from Dick Smith and others and follow the instructions on the bottles.

It's really easy!

An Example

As an example of this procedure I laid out a simple one transistor Common Emitter amplifier which could be used to train Novices.

Start off by drawing a box for the printed circuit outline. Divide the required dimensions by 60% and draw an outline that size on the MS Draw screen.

Then draw up the pads for the transistors and integrated circuits and place them on the board. The pads for the other components follow. After you have made one IC pad pattern, you can copy and paste it and move the copies around until they are in position. Make the connections, (tracks) and then apply the labelling with the text function. Be careful not to over run the tracks or you may create shorts.

I like to lay out the board from the top view, so I needed to flip the finished design to get the copper-side. When you are satisfied with the design, scale the drawing to 60% and you're done.

It's as simple as that.

Note that other similar methods have appeared in AR for which references have been included.

Ref:

AR November 93 p17

AR February 94 p13

QST July 93

ar

Do you know of a process, a technical shortcut or a completely new way to achieve an amateur radio result?

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You Have E-mail

Brian Beamish <brianvk4bbs@msn.com.au>

Subject: Urgent Warning New Virus!

Date: Thursday, 1 April 1999 8:19

VIRUS WARNING!

If you receive an e-mail entitled "Crazy Times" delete it immediately. Do not open it! Apparently this one is pretty nasty. It will not only erase everything on your hard drive, but it will also delete anything on disks within 20 feet of your computer. It demagnetises the stripes on ALL of your credit cards.

It reprograms your ATM access code, messes up the tracking on your VCR and uses sub-space field harmonics to scratch any CD's you attempt to play or use. It will re-calibrate your refrigerator's coolness settings so all your ice cream melts and your milk freezes. It will program your phone autodial to call only your mother-in-law's number.

This virus will mix antifreeze into your fish tank, drink all your beer, will leave dirty socks on the coffee table when you are expecting company and its radioactive emissions will cause your toe jam and bellybutton fuzz (be honest, you have some) to migrate behind your ears.

It will replace your shampoo with Nair and your Nair with Rogaine, all while dating your current boy/girlfriend behind your back and billing their hotel rendezvous to your Visa card.

It will cause you to run with scissors and throw things in a way that is only fun until someone loses an eye. It will give you Dutch Elm Disease and tinea.

It will rewrite your backup files, changing all your active verbs to passive tense and incorporating undetectable misspellings that grossly change the interpretations of key sentences.

If the "Crazy Times" message is opened in a Windows 95 environment, it will leave the toilet seat up and your hair dryer plugged in dangerously close to a full bathtub.

It will not only remove the tags from your mattresses and pillows, but it will also refill your skimmed milk with whole milk and replace all your luncheon meat with Spam.

It will molecularly rearrange your cologne or perfume, causing it to smell like dill pickles. (Remember Brut 33?)

It is insidious and subtle.

It is dangerous and terrifying to behold.

It is also a rather interesting shade of mauve.

(I recently received this from Brian and just had to pass it on
Bob VK4KNH)

A Homebrew 813 Linear Amplifier

(Part 2)

C.J. Bourke VK4YE

Lot 16 Waterford-Tamborine Road
Tamborine Village Qld 4270

High Voltage Supply

The amplifier works quite happily with supply voltages from 1.5 to 2.5kV. The 813 will take 3kV, but you will not find reference to it by the original manufacturer, RCA.

A pair of microwave transformers offers a very convenient means of producing a high voltage supply at minimal cost. Your local rubbish tip/recycling centre ought to have a good supply of dead microwave ovens. Secondary voltages seem to range from 1500V to 2200V. Technically, they are known as saturable reactors. They are designed to regulate their output voltage through the action of a pair of soft iron shunts inserted between the primary and the secondary windings. This feature must be disabled.

To remove these shunts, cut the heavy filament winding (usually 3 or 4 turns) and pull the wire out. With a piece of steel rod about 5mm in diameter, carefully tap out both shunts. Refer to page 16 of the May 1998 issue of *Amateur Radio* for more information on microwave transformers and removal of the shunts.

You will note that one side of the secondary winding is earthed because the microwave oven uses one transformer in a half-wave rectifier circuit. You must use two similar transformers in a push-pull arrangement to obtain full-wave rectification. They must be phased so that they effectively behave as a single transformer with a centre-tapped secondary. The schematic for this appears in Figure 3.

The phasing is simple. Wire the transformers as per my circuit with the primaries in parallel. This can be done on the bench. Connect a low voltage AC supply, say 6V, to the primaries and measure the total secondary voltage, making sure the framed secondaries are connected together. The total secondary voltage should be twice that of each individual secondary voltage which in turn will be about nine or ten times the primary voltage. Expect to see 100V or more for the total secondary voltage. If the voltage is low, you have the transformers connected in anti-phase. Reverse the connections of one

transformer primary and remeasure. It should now be correctly connected.

I strongly suggest you use a pair of transformers with a secondary rating of around 1800V. This will give a theoretical peak rectified voltage of about 2500V across the filter capacitors. However, the bleeder resistors will pull this down to 2300V or so. If your transformers have a secondary rating of 2200 Vrms, then the peak rectified voltage will exceed 3kV. I recommend you lower the primary voltage through the use of a line-bucking transformer. Figure 4 shows how this is done. As the transformer secondary carries the entire plate transformer primary current, a continuous secondary rating of 2A or 3A should be adequate. The secondary voltage should be at least 30V and ideally be 40 - 50 volts.

I did not bother with a soft-start in the primary circuit for the prototype amplifier. However Figure 3 shows one that has been built and tested. The relays have 24V coils with a SPDT 30A set of contacts. They are available from Altronics [S 4199]. The high voltage rectifier consists of a string of 10 x 1N5408 diodes with voltage sharing resistors. These diodes are rated at 1000V PIV with a forward current of 3A. The resistors are to ensure equalisation of the reverse voltage on the non-conducting cycle. Do not omit them. Each resistor has a value of 470k Ω and is rated at 1W. Use carbon resistors as they can withstand 500V working voltage and up to 1kV peak [according to the manufacturer's data].

Filtering

Next we have the filter capacitors and bleeder network. High voltage electrolytic capacitors are not a cheap item. After a lot of shopping around, the best deal came from Jaycar. They have 100 μ F 400V working electrolytics at \$5.95 for single units. Provided the rms secondary voltage of the plate transformers does not exceed 2kV, 7 electrolytic capacitors of 400 working volts will do. The bleeder resistors will ensure that the rectified output voltage does not rise to the peak value of the secondary voltage.

Last Month

The first part of this article, printed in the March issue of AR contained the description of the circuit, and details on the filament transformer, split stator plate tuning capacitor, band selection, plate choke, the input circuit and the optional ALC. To avoid confusion, figures 1 and 2 if referred to here are in the March issue and figures 3 and 4 are in this issue.

If in doubt, use 8 capacitors in series. Each electrolytic has a 22k Ω 17W voltage sharing resistor across it. Bigger supply companies such as Farnell Electronic Components stock these resistors. Incidentally, it is not worth going beyond 30 μ F of filtering. The dynamic regulation of a power supply for this amplifier is quite adequate even at 12.5 μ F [8 x 100 μ F in series].

Metering

Metering of the high voltage is best done by sampling the voltage across the bottom bleeder resistor. An appropriate multiplier resistor connects to the meter that is scaled to read 3kV or so. You then do not have the full supply voltage connected to a series of multiplier resistors, giving rise to unnecessary component failure risks.

The plate current is metered by inserting a 10 Ω 10W resistor between the "earthly" end of the plate transformer secondaries and earth. This requires you to lift the framed ends and tie them together. The plate current meter is connected across this resistor. While screen current is also included in the meter reading, it is not significant compared to the plate current. Incidentally, I made up scales for all meters by cutting out letters and digits that were printed out by an ink jet printer. They were then pasted on to a sheet of paper at appropriate positions to form a meter scale. The scale was then photocopied, cut to correct size, and finally pasted on to the faceplate of a meter. It was a far neater option than attempting a freehand sketch.

I have found a useful type of high voltage stand off insulator at your local hardware store. The store will sell them as door closers! They are made from tough plastic and can be easily cut, filed and drilled. Several of them have been used in this project.

Mounting of Tubes

The 813 tubes can be mounted upright or horizontally with pins 1 and 6 in the vertical plane. Horizontal mounting has the

advantage that you can build the amplifier into a low profile box perhaps no higher than 175mm. It certainly looks more modern and compatible with solid state rigs.

Cooling of Tubes

While the 813 operates as a natural convection/radiation cooled tube, I would recommend the use of a computer fan to assist cooling.

If the tubes are to be mounted horizontally, the fan can be mounted beneath the tubes blowing air up past them. Consider using a fan to remove heat from the power supply as well.

Testing

Assuming you have thoroughly done preliminary wiring checks, a step by step testing procedure can be implemented.

- The high voltage supply can be tested first. Other transformer primaries must not be wired to the soft-start circuit yet. Initially, connect a 100W light globe in series with the primary of the high-tension transformer, which are then wired to the soft-start circuit. This is to give a reduced primary voltage just in case there is a serious wiring error in the high-tension area. The tubes should be out of their sockets. Switch on the 240V and observe that the soft-start circuit works. A delay of approximately 0.5 seconds will occur before relays RX and RY operate. Note the reading on the high voltage meter. It should be less than the design value due to the presence of the light globe.
- If all seems well, remove the 100W globe from the input and connect the high-tension supply transformers directly to the soft-start circuit. Switch on the 240V and note the reading of the high-tension voltage. It ought to be around the peak value expected for your particular transformer/filter/bleeder combination.
- Disconnect the primary of the high-tension transformers from the soft-start circuit.
- Now connect the ancillary supply to the soft-start circuit. Switch on and check that +12V is available. Check that relays RA and RB operate by inserting a shunting plug or a ground at the 'relay to rig' socket. Leave the ancillary supply permanently connected.
- Connect an SWR /POWER meter between your rig and the input of the amplifier. The output of the amplifier should be terminated in a suitably

rated 50Ω dummy load. This is simply a "straight through" test. Apply low level carrier and observe that the SWR reading is very low. If all is well increase the drive to maximum. The amplifier should have only a minimal effect on the SWR reading in the 'straight through' position.

- Connect the filament supply to the soft-start circuit. Fit the two tubes into their sockets, fit plate connectors and switch on. Measure the filament voltage at the filament transformer and at the tube sockets. Previously you ensured that the filament voltage at the transformer [no load] was between 10.0 and 10.5V. The minimum voltage at the filaments must be 9.5V. The filament supply is to remain permanently connected.
- Now connect the amplifier's relay socket to the rig's relay socket. With minimum drive, check that the input/output relays RA and RB operate when you hit the PTT switch.
- Apply initially no more than 5W of drive. Observe the input SWR reading and adjust the slug in the input-tuning unit for the band you are using. You should be able to get the SWR down to 1:1 for 10m, 15m and 20m [if installed]. Below 20m the SWR will remain quite low.
- You can check that screen voltage is being developed with input power - perhaps 80V to 100V at 5 W of drive.
- Reconnect the B+ supply to the soft-start circuit and switch on. If all seems well you are ready for the smoke test.
- Connect your SWR/POWER meter between the amplifier's output and dummy load. If you have a second SWR/POWER meter connect it between the transmitter and the amplifier input. Leave the ALC disconnected for the time being. Set the band switch to the highest frequency band, say 10m, and turn the amplifier on. The plate current [Ip] should be zero. If all is well, set the standby switch to the operate position. The B+ voltage should fall a little and Ip should rise to around 50mA.
- Monitoring Ig, rock the plate and tune capacitors through their range. There should be absolutely no hint of meter movement. If there is, you have either a VHF parasitic oscillation or stray feedback from the plate tank circuit to the grid circuit. Parasitic oscillations will have a frequency between 100MHz and 200MHz, while plate to grid feedback will occur in the HF

range. Parasitic oscillations are cured by altering the dimensions of the plate chokes - more/less turns and by the placing of ferrite beads over the control grid and screen grid connections at the tube sockets. HF feedback requires careful shielding so that the plate components do not "see" the input components. Repeat this test for all other bands you have installed.

- Assuming the amplifier is behaving nicely so far, select a mid-range band such as 40m, and un-mesh the load capacitor. Set the tune capacitor to half mesh and apply a couple of watts of drive. Ip should rise a little. Apply enough drive to bring Ip up to 100mA. Adjust the load capacitor until a peak in output power is indicated. Now alternatively adjust the tune and plate capacitors for maximum power output - it will be perhaps 50W or so.
- Check that some Ig is indicated and then monitor Isg. At resonance, Isg is at a maximum value. Check this by rocking the tune capacitor and observing the change in Isg and power output. The dip in Ip at resonance may not be particularly noticeable.
- Increase drive until 250mA of Ip shows. Readjust tune and load capacitors for maximum power output. Again monitor both control grid and screen grid currents. Increase drive further until around 400W rms is indicated at the output. Keep Ip under 500mA. Ig should be around 50mA and Isg about 40mA. Note that this power level of 400W rms is grossly in excess of the allowed 120W CW signal we are permitted to put to air.
- Now repeat the procedure for the other bands. Do not be too concerned if 10m does not show 400W rms with 25W - 30W of drive. Losses will be higher on this band and key down carrier [single-tone] testing is really quite severe on the dynamic regulation of the high-tension supply. Proper two-tone testing will show that the legal limit is easily being achieved on all bands. Furthermore, linearity can also be checked by this method.

Single-tone test data at 14.2MHz indicates the DC power input is 650W and the efficiency works out to be 62%.

SINGLE-TONE TEST DATA FOR 14.20MHz				
Vp	Ip	Ig	Isg	Power Out
2100V	310mA	50mA	40mA	400W rms

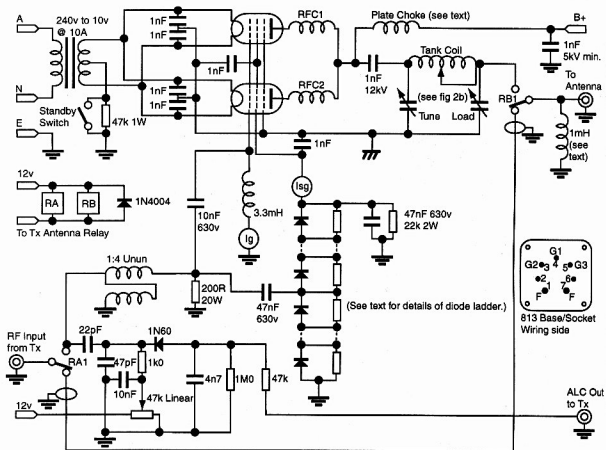


Figure 1

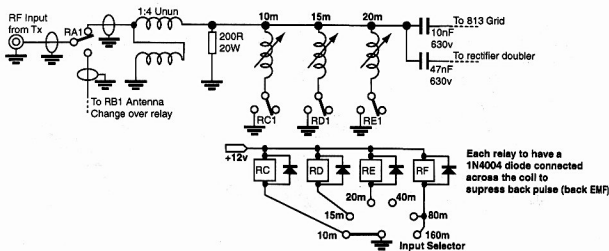


Figure 2a

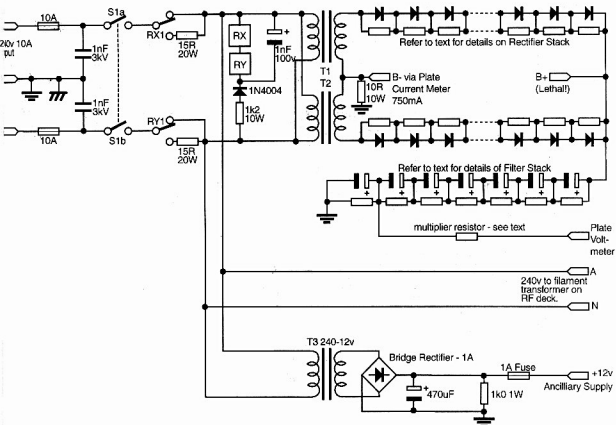


Figure 3 - Power Supply

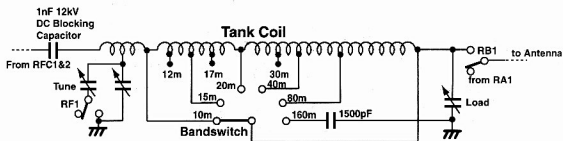


Figure 2b

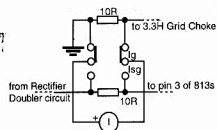


Figure 2c - Meter switch if used.

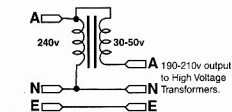


Figure 4 - Line Bucking Circuit



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Two-tone Testing

A thorough testing procedure requires access to a two-tone oscillator, oscilloscope and heavy-duty dummy load. Two-tone testing will give a completely different set of readings and power output figures compared to single-tone testing. Under this testing procedure, 200 W mean power indicated on the power meter is equivalent to 400 W pep. Test results giving a mean power output of 200W required a DC input of 515W. Efficiency is just under 40%.

TWO-TONE TEST DATA FOR 14.20MHz

Vp	Ip	Ig	Isg	Power Out
2100V	245mA	20mA	15mA	400W PEP

Alternate Tubes

The 4-125 tetrode and its derivatives such as the RS1007, QY3-125 and QB3/300 are very suitable for this design. They are physically smaller than the 813, and have a 5V filament drawing 6.5A. All have an ICAS plate dissipation rating of 125W. You will require a paralleled pair plus sockets. The plate connectors, which are the same as for an 811A tube are available from the Electronic Valve and Tube Company. Telephone (03) 9571 1160.

The correct ceramic socket to use is a Johnson type 275. This series of socket also fits the 4-250, 4-400 and 3-500Z transmitting tubes. The QB3/300 tubes and sockets are available from Malcolm McIntosh, 26 Branch Creek Rd, Clear Mountain, QLD 4500. Telephone (07) 3298 5454.

Because the QB3/300 has a much lower plate to filament capacitance of only 3.5pF, I have recalculated the pi-network values. The plate tuning capacitor will still need to be modified as explained previously, but it will connect to the start, not the centre of the 10 m coil. I suggest the following coil winding data for the nine MF/HF bands.

COIL WINDING DATA for QB3/300 TUBES				
BAND	TURNS	DIAMETER (mm)	LENGTH (mm)	WIRE GAUGE
160m	26 turns	60	40	1.6mm
80m	tap 14 turns			
40m	tap 7 turns			
30m	tap 4 turns			
20m	8 turns	40	55	3.6mm
17m	tap 5 turns			capillary
15m	tap 4 turns			tubing
12m	tap 2 turns			
10m	6 turns	40	45	3.6mm
				capillary
				tubing

There will of course be a modification to the filament supply and connections. I recommend the existing 10V filament transformer be retained, but the centre-tap obviously will not be included. The tubes will have their filaments connected in series as per Figure 5. The total current drawn will be 6.5A.

As the input capacitance is lower than that of the 813, it may be possible to achieve a low SWR on the 20m band without having to switch in an inductor as previously done.

Components and Suppliers

Many parts are readily available at the usual electronic component retailers. Some, such as RF chokes, can be fabricated. Hamfest and amateur radio clubs are useful sources of supply as are the advertisements in AR magazine, and Radio and Communications magazine. The following businesses and individuals are worth contacting -

1. Strictly Ham Pty Ltd (03) 9729 7656 - secured much of Daycom's stock of tubes and MFJ products. Plate tuning capacitor, 813 tubes and sockets.
2. Peter Hadgraft (07) 3397 3751 - 813 tubes.
3. The QRP Club (08) 8295 8112 - Load capacitors, 200W 50W non-inductive resistors [availability varies].

Conclusion

While the home brewer can assemble this project for around \$300, I am aware that second hand commercial linear amplifiers are available for around \$600-700 that will serve well. Many licensees prefer to go down that path. This article is presented for those of us who get a buzz out of pursuing the 'self-training and technical investigation' aspect of our hobby. It would make a great club project because it will allow those with expertise to share it with fellow operators who have not been exposed to vacuum tube technology and/or the construction of high power amplifiers.

Should anyone wish to enquire further, the author, VK4YE, can be contacted through:

The Secretary, Southside
Amateur Radio Society
Incorporated, PO Box 294,
Woodridge, QLD, 4114.

Our packet address is
VK4WSS@VK4PKT.
#BNE.QLD.AUS.OC

You may also care to look at
our Internet Homepage
www.powerup.com.au/v-jabba
for a copy of this article plus two
QBASIC programs I have
written. One calculates pi-
network constants, and the other

calculates the dimensions of single layer air
wound coils.

References

1. ARRL handbook 1968, p 195 - 198
2. RSGB Handbook, Fourth Edition,
Chapter 10.62 - 10.65
3. CQ Magazine, March 1966

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TECHNICAL ABSTRACTS

Gil Sones VK3AUI
30 Moore Street
Box Hill South Vic 3128

TV Locked Frequency Standard

In the United Kingdom some TV networks are locked to a standard frequency. This is available via the synchronising signals transmitted as part of the signal.

The standard used may be quite good. In an article in *Rad Com* Jan 1999 a Caesium standard was mentioned. Lesser standards are often used but these may be better than the sort of standards normally available to amateurs. In Australia a variety of standards are in use.

The article, by Dave McQue G4NJK

described a circuit which locked a 10 MHz oscillator to the synchronising signal from a TV set or VCR used as a receiver.

The signal was obtained from the SCART socket on the TV or VCR. The circuit described had been derived from a design originally published in CQTV and had been modified. The circuit is shown in Fig 1. IC1 is a sync separator integrated circuit which separates the sync pulses from the composite video input signal. IC2a is a 40-microsecond monostable used to mask the

half sync pulses in the output of IC1. The 15625 kHz output of IC2a is divided by 2 in IC2b to give a 7812.5 Hz output that is 1 MHz divided by 128. IC3 functions as a phase detector with outputs to the phase meter and to lock the local 10 MHz crystal.

IC4 provides the 10 MHz crystal oscillator and some buffers. IC5 and IC6 is the divider chain. Outputs of 1 MHz, 100 kHz and 100 Hz are provided.

The meter used was a 100-0-100 microamp type but other centre zero types can be used. R6 is adjusted initially before connection to IC3 to give FSD when connected to the 5-Volt rail. R6 is then connected to pin 6 of IC3.

To set up the circuit VC1 is adjusted to give centre zero on the meter with the switch in the set position.

Then VC1 is touched up to give the slowest meter movement in the Lock position. The 10 MHz oscillator is then locked to whatever standard the TV network is using. At switch on the meter needle will oscillate and then settle as lock is achieved.

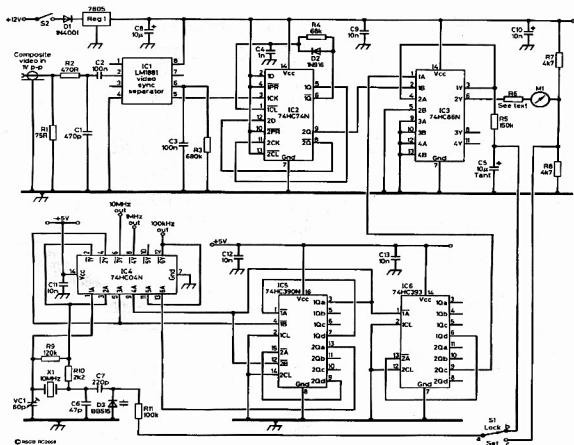


Fig 1. TV Locked Frequency Standard

Increasing Regulator IC Output Voltage

Adjustable output voltage regulator ICs are available but sometimes you may wish to use a fixed voltage regulator for a different output voltage.

In QST January 1999 Sam Ulbing N4UAU described how to use an LM7805 regulator to provide a regulated 9-Volt supply. The same principle can be used for other fixed voltage regulators and output voltages.

A diode or Zener diode can be placed in the ground lead of the regulator as shown in Fig 2a.

This may be convenient but you may want a different voltage or to adjust the output voltage. The circuit of Fig 2b allows the output voltage to be adjusted to your needs.

The voltage between the regulator ground pin and the output pin is regulated to the regulator's fixed voltage that in this case is 5 Volts.

The voltage drop of the diode in Fig 2a is added to the regulator voltage to give the output voltage that in this case is 5.6 Volts. In Fig 2b the voltage across R1 is 5 volts and this is added to the voltage across R2 to give the output voltage. The values given are those used by Sam N4UAU to give 9 Volts output.

The quiescent current of the regulator IC plus the current flowing through R1 flows through R2. The current through R1 should be at least 3 times the quiescent current of the regulator IC. For an LM7805 the maximum quiescent current is 8 mA. The

quiescent current varies with devices, input voltage, and temperature.

The terminal output voltage for an LM7805 in Fig 2b is given by: -

Equation 1. $V = 5 + (I_Q + 5/R_1) \times R_2$ in volts where I_Q is the Regulator Quiescent current in Amps. R_1 and R_2 are in Ohms.

The values of quiescent current and the

actual resistance of components vary from those marked so some experimentation is required.

For other fixed voltage regulators substitute the regulator output voltage in place of the 5's given in Equation 1 as these are for a 5 Volt fixed voltage regulator.

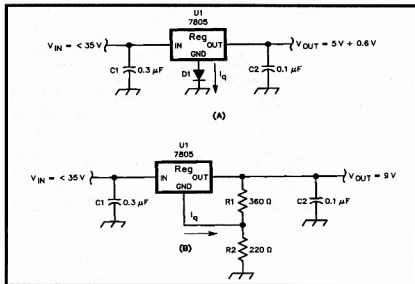


Fig 2. Increased Output Voltage from a Fixed Regulator.

Logarithmic Detector for Panadaptor

A simple logarithmic detector for use in a panadapter by Bob Dildine 7J1AFR, W6SFH appeared in QEX July/August 1998. The detector uses an NE604 and uses the RSSI out-put that is a logarithmic signal strength output.

The circuit is shown in Fig 3. The NE604 is a high gain device and layout and bypassing is important.

After construction, to check for stability, ground the wiper of the 500-Ohm vertical offset potentiometer and measure the RSSI voltage at pin 5 of the NE604 with a high impedance voltmeter while the detector input is disconnected. More than 250 mV indicates possible stability problems. You would then need to improve bypassing and layout.

The LM10 is setup as a voltage follower buffer. The output is about 0.5 V per 10-dB change of input signal. A handy logarithmic detector for a Panadaptor.

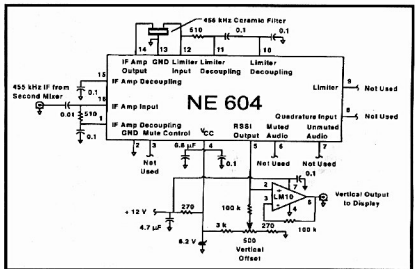


Fig 3 - Logarithmic Detector

RF Speech Clipper Correction

Unfortunately an error crept into the description in Technical Abstracts December 1998 of a RF. Lloyd Butler VK5BR has brought the error to my attention.

The claim was made that "An RF Speech Clipper allows heavy clipping without the harmonics and intermodulation products present in audio clippers".

Harmonics generated do fall outside the

pass band of the 455 KHz ceramic filter used, however as Lloyd points out, odd order intermodulation products generated by intermodulation within the sideband components fall within the range of the

continues over

A NOTE ABOUT THE DL6WU YAGI

Ian Cowan VK1BG,
13 Mainoru Place
Hawker, ACT, 2614.
cowan@effect.net.au

My trusty 13 element DL6WU was built and erected about 10 years ago. It replaced a smaller beam that was based on the NBS design data.

A few days before I put up the new wooden beam, I received a letter from Gordon McDonald (VK2ZAB), in which he put forward a then new theory concerning the influence of the last director on the front to back performance of a Yagi antenna.

Gordon explained that the wave travelling down the director string effectively encounters a discontinuity when it arrives at the last director, and as a result some of the energy is reflected back along the director string towards the driven element.

Whether the returning wave is in or out of phase with the wave being delivered by the driven element has a significant influence on the front to back performance.

This of course depends upon the distance between the last director and the driven element.

Gordon said that 13 elements were not a good choice in a DL6WU antenna, and that 14 elements should be much better.

While Gordon's letter was of interest, my new pride and joy had already been completed, so I decided to leave it alone.

Besides, a poor front to back ratio wasn't going to matter much in my mode of operation, and it could even be an advantage to be able to hear what the Sydney stations were up to while my beam was on Melbourne.

In the event, my memory tells me that the front to back ratio came out at about 18dB, which in the scheme of things was not too flash.

This was in accordance with Gordon's prediction, but maybe that was due to a crook reflector element rather than to good theory.

Well things have changed somewhat since then!

TECHNICAL ABSTRACTS continued

sidebands and the acceptance band of the ceramic filter.

So the harmonic distortion is removed but not the intermodulation distortion.

Lloyd also referred to his article in AR August 1997 which dealt with Inter-modulation Performance and Measurement of Inter-modulation Components.

There is now a lot more activity from Sydney, and in addition there has been the arrival on the scene of Reg, VK1MP. He lives only a few km away to the North East.

He has a very big signal which my poor Rx has difficulty rejecting even when our two stations are working 50 kHz apart, and with my beam to the South West, and hence back on to Reg. I gather from Reg that my signal did not do his system any good either.

On an impulse, and still mindful of Gordon's theory, I checked my aluminium stockpile to see if I could find enough to provide some extra boom length, and a 12th director.

A few dB improvement to the front to back ratio might be worth having, though my experience with such things led me not to expect too much.

At risk to life and limb, the new element was fitted to the old antenna in situ, -not a recommended practice in normal conditions.

Well, it turned out that the theory was good.

While I have not been able to make decent measurements as yet (we don't have a beacon in Canberra any more) it is clear that there has been a profound change in the front to back ratio.

Reg and I now both chase VK3's with minimal mutual interference at 50 kHz separation, and the Sydney stations are much weaker off the back of the beam.

An extra small bonus is that the SWR has improved to near perfect. It was never really an issue, but now it is pretty hard to see any reverse power at all.

All this suggests to me that the 14-element DL6WU configuration makes a very effective antenna for a medium level two-metre station.

The exercise provided a rather neat demonstration of coincidence between theory and practice that I ultimately found to be quite satisfying.

The RF clipping approach is an interesting technique that has been used a number of times. It is more complex than an audio clipper but is capable of better performance.

I would like to thank Lloyd for bringing this error to my attention.

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Just when I had formed my own opinion about new DXCC countries, somebody got the bright idea of increasing the active countries (entities) to read 332.

Of course, I have yet to see documentation in the affirmative. What it means to me, is that I will now have to add E44 - Palestine, to over 400 files that I presently manage! Why is it, that I still have only one VK1 in those aforementioned files?

PNG - The Bird of Paradise Award

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The Awards Manager

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Romania Award

Work at least 30 different YO stations each in a different YO county. The capital city of Bucharest must be included. All 8 YO districts (2 to 9) must be represented. The list is: -

AB Alba YO5	HD Hunedoara YO2
AR Arad YO2	HD Hunedoara YO2
AG Arges YO7	IL Ialomita YO9
BC Bacau YO8	IS Iasi YO8
BH Bihor YO5	MM Maramures YO5
BN Bistrita-Nasaud YO5	MH Mehedinti YO5
BT Botosani YO8	MS Mures YO6
BR Braila YO4	NT Neamt YO8
BV Brasov YO6	OT Olt YO7
BZ Buzau YO9	PH Prahova YO9
CL Calasari YO9	SJ Salaj YO5
CS Caras-Severin YO2	SM Satu Mare YO5
CJ Cluj YO5	SB Sibiu YO6
CT Constanta YO4	SV Suceava YO8
CV Covasna YO6	TR Teleorman YO9
DB Dimbovitza YO9	TM Timis YO2
DJ Dolj YO7	TL Tulcea YO4
GL Galati YO4	VS Vaslui YO8
GJ Gorj YO7	VL Vrancea YO4
GR Giurgiu YO9	VR Vrancea YO4
HR Harghita YO6	

South Africa - The All Africa Award

Contact 34 different AREAS in Africa. One contact with areas 1 to 9 is mandatory, plus any 25 additional ones from the list below. Land stations only, no islands around Africa. Contacts may be with past or present prefixes, but not both. The

AREAS are:

ZS1 South Africa	S8 Transkei
ZS2 South Africa	7X Algeria
ZS3/V51 Namibia	D2 Angola
ZS4 South Africa	ST Sudan
ZS5 South Africa	9Q5 Zaire
ZS6 South Africa	9U5 Burundi
A2 Botswana	9X5 Rwanda
3D6 Swaziland	6O/T5 Somalia
ZS8/7P8 Lesotho	TJ Camerouns
H5 Bophutatswana	SU Egypt
	ET3 Ethiopia

TL8 Cent. African Republic
TN8 Congo
TR8 Gabon
TT8 Chad
CN Morocco
FL8/J2 Djibouti
TV Ivory Coast
TY Benin
TZ Mali
XT2 Birkina Fasso
5T5 Mauritania
6W Senegal
5U7 Niger
3X Guinea
3C Equatorial Guinea
ZD6/C5 The Gambia
ZD4/G1 Ghana

9L1 Sierra Leone	5Z4 Kenya
ZE/J2 Zimbabwe	EL/5L Liberia
EA9/S0 Ceuta/Melilla,	5A Libya
Western Sahara	C8/9 Mozambique
5H3 Tanzania	ZD2/5N2 Nigeria
3V8 Tunisia	9J2 Zambia
5V4 Togo	7Q7 Malawi
5X5 Uganda.	J52 Guinea-Bissau

SARL Series : General requirements : GCR rules apply. Award fee is US\$4.00 10 IRC's or 2 Rand. Apply:

Awards Manager
South African Radio League
P.O. Box 807
Houghton 2041
South Africa

Taking Photos for Amateur Radio

Bob Harper VK4KNH
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Bobharper@bigpond.com

SINCE I HAVE BEEN managing AR I have had a few occasions when photographs had to be rejected as they were unfortunately not technically printable. I would like to see many more photos in the magazine and as such thought I might have a few words about taking photos for AR.

Although the photos within the magazine will be in Black and White there is no need to buy special film for the job. Use ordinary colour film and have it processed in a normal Minilab then just send one copy of the prints to the WIA Federal address. Prints should be covered with plain paper and have a piece of cardboard enclosed to reduce the chances of having them folded. You should write the words "Photos - Do not fold" on the envelope on both sides.

All photos should have a caption describing what it depicts, who is in the photo, who took it and when it was taken etc. This can be written on a piece of sticky label that is then stuck to the back of the photo. Otherwise the photos should be numbered and a separate caption sheet written out. Please make sure I know who sent them in and how to return them.

That was the easy part; now for the photographs themselves. Taking photos today should be fairly easy with cameras doing most of the thinking for you. In fact they do so much of the work that we often just point and shoot and don't even think what we are shooting. It is only when the photos are printed that the mistakes become obvious.

Here are some general rules to help take better photos:

People

Remember that we want those who know the subject to recognise them. So avoid grand poses and simply try to have the person smile. They don't have to be staring goo-goo eyes at the camera either; they may well be working DX into a microphone or exercising their fist on a key in which case they wouldn't normally be looking at the camera - would they? Try to get them as natural as possible.

When cropping people, there are a few places to cut them off that work and many others that don't. How many of you know

somebody that always cuts off either feet or heads? The rule I was taught was to cut a limb about a third from the top. So a "head and shoulders" shot for example has about a third of each arm in it. Sounds right doesn't it? If you cropped at the waist and sent it in I would probably crop it as head and shoulders anyway. Similarly, you don't see photos cropped at the knees or ankles unless it is a mistake. For our purposes most photos would be head and shoulders anyway.

Be considerate. Taking photos that the person will hate you for will probably not be good for you, the subject or the magazine.

Groups

Gather them in. Better to have a shot of five people shoulder to shoulder than five small faces and a lot of open space around them. It is also a good idea to have the subjects all look at the same point - "look here" or "look at Charlie over there" but not all looking in different directions.

You might not want to say cheese but let them know when the photo is going to be taken - "Everybody ready - Now". That way you'll have fewer photos of closed eyes or sneezes.

Backgrounds

Photographers always choose a bland background when they want the person to stand out. If you are photographing a person receiving an award then try to have them stand against a plain wall or plain curtains. Outside you might choose an outside wall, plain foliage or shoot against the sky. If you have a lens that you can adjust, (ie a camera not a snapshot special) use a large aperture and adjust the speed to suit. Then stand the person away from any background and hopefully the background will be out of focus anyway.

Indoors

Use a flash and if possible bounce it off of the ceiling as long as it isn't a strong colour.

Have people stand away from the walls to avoid strong shadows around their heads. Otherwise they tend to look like mug shots or drivers licence photos.

Outdoors

It helps to use a flash here as well if you cannot choose the best place and angle for the shot. If you can though, have the sun at your back (a little to one side or the other won't hurt.) and if it is in the subjects eyes, let them look down until you are ready then say "Look up - Cheese" and take it. That way the subjects aren't all squinting at you.

If the light is too strong and sharp, in the middle of the day for example, look for a shadow or go indoors. Avoid shooting people against bright backgrounds unless you want a silhouette. Essentially, if in doubt, use the flash.

Another point, particularly when shooting outdoors, is to avoid traps such as telephone poles that appear to sprout out of heads, wires coming out of ears etc. It even happens to professional wedding photographers occasionally. But you won't see the proofs of that.

Finally as far as people photos are concerned, if they are doing something, then the photo should show that. Why take a photo of an Amateur sitting beside a radio? Would you take a photo of a footballer standing beside the goal posts or would it be better to show him taking a high mark?

Equipment and Projects

When equipment is to be reviewed, the supplier can often access photos shot specifically for that purpose and they prefer their own expensive photos which no doubt show the best side of their equipment. This is simply because they paid a professional photographer to spend hours getting the best lighting and angles.

The two most important items here are lighting and focus. If your camera can't focus up close then take it back to where it can focus. A smaller image in the frame may still be sharper when enlarged, than an out-of-focus image. It may be an advantage to get back and use a telephoto lens if you have one. The perspective probably looks more natural anyway.

Lighting doesn't need to be expensive, as the equipment is quite happy to sit still while you shoot it. You don't even need a flash. Use desk lamps, fluoro lights, floodlights or whatever and just experiment with them until you get the light right. You can take very good photos on a bright sunny day by using ordinary white paper to reflect sunlight into the darker areas and diffuse the Sun's rays into a softer light. I use a cheap windscreens sun shield as a reflector in many of my outdoor photos.

Another item that may be of concern is the background material. Black cloth, especially felt is great for lighter items but too dark for "Black Box" items that we Amateurs love to make. Use a light blue cloth with no pattern

and lay it so there are a few "waves" but not folds in the cloth. One common method is to use table and a large box as a backing with the cloth laid over it so there is a curve from the vertical to horizontal surfaces and there is no corner to be seen.

The main aim is to make the equipment the only item of interest in the photo. One other item may be included as a reference to the size of the equipment. Commonly this would be a coin, pencil, matchbox or other common item that every reader should recognise.

If the front panel is important due to the control layout or whatever then take a separate photo of the panel, square on. Then take a photo of the whole item in perspective view – ie so that three sides can be seen. That gives the reader an idea of the shape and depth of your project.

When you need to show the innards of the project try to find the best angle for showing as much detail as possible. Set up the lighting to avoid shadows even if it means using three lights. If you need to point out a particular component or position then there are several methods possible. One is to use small paper arrows perhaps labelled or numbered and placed to point to the item of concern. Another is to use string or wool passing around the item and held taut outside of the camera view. But the best is to take two shots – one for the actual image and the other to draw your arrows onto.

I will then put neat arrows with labels on the photos digitally just like in the textbooks. Your job is a clear, well-focused and well-lit photograph.

If the front panel isn't as neat as you would like it – just take the best shot you can. I may be able to add a classy front panel with neat lettering afterwards – as long as I know what the controls should be called.

Antennas and Hardware

Antennas are difficult to photograph effectively due to widespread narrow elements. I suspect that beams could be shot on a dark night by opening the lens on a "Bulb" setting and shooting multiple flashes at the tower and elements.

It would make an interesting front cover if somebody wants to experiment and has a suitable camera especially as you might get star tracks in the background.

For construction projects on antennas, treat the important points such as brackets and connections similarly to equipment photos discussed above.

Aluminium is difficult to photograph without careful lighting but one trick that I have seen used in textbooks is to use a felt pen on all of the edges.

Black coaxial cable will often show up as thick black lines but a quick polish up may make them show up in 3D again.

Photos or Diagrams?

Thin wires strung between trees are almost always impossible to see, so send a diagram instead. Likewise, a photo of the top of a PCB will look nice but a diagram will show much more, if the sizes are accurate. A well-drawn diagram often explains your story better than a photo and with less trouble.

Events and Scenes

There are photo opportunities often forgotten. We Amateurs often attend rallies, fun-runs and other sporting events, put on displays in shopping malls, assist fundraising for charities, respond to emergencies, participate in State Emergency Services, Rural Fire Services and many other activities where Amateur Radio is on show. But we never seem to take photos to show we were there. Was an amateur in the Sydney to Hobart Yacht Race? I'll be amazed if there wasn't. Photograph an event that you attend as it shows Amateur Radio involvement.

If your club goes on an excursion, take a photo of the attendees with a landmark prominent in the shot. Why go to the Opera House and get a photo with some harbour vaguely behind you? Seek opportunities for personal shots and for promotion of AR as a part of the community.

Remember: film is cheap and photos last a very long time – take some history with you.

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Book Review:

The RSGB Guide to EMC

Author: Robin Page-Jones G3JWI

Reviewed by Bill Rice VK3ABP

ISBN: 1 872309 48 8, 208 pages
Our copy Direct from RSGB UK
Recommended Retail Price £18.75

As I'm sure you all know, EMC stands for Electro-Magnetic Compatibility, which is a sort of shorthand for "ability of electronic equipment to perform normally in the presence of other electronic equipment while it is also performing normally."

In other words, it covers far more than the presence or lack of interference between systems, but also the whole range of technology by which such interference can be minimised or preferably, eliminated.

This book is probably the most comprehensive volume so far published on the ramifications of EMC; and of course its origin

guarantees that it tackles the subject from an amateur radio viewpoint.

As many of us know from unhappy experience there is great scope for inadequate compatibility between amateur transmitters and nearby television receivers.

But a whole armoury exist of techniques to minimise this and similar problems. Such techniques are the subject of this book.

Related topics which are also covered are interference to and by computers, and there is even an appendix on the subject of lightning. I would go so far as to say that no senior amateur can afford to be without this book.

It should be compulsory reading.

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Australian LF Band Gains International Reputation

By Jim Linton VK3PC

Articles on a long wave propagation by John Adcock VK3ACA which appeared in *Amateur Radio* June-September 1991 is now attracting interest worldwide.

The Long Wave Club of America (LWCA), whose members experiment in the LF spectrum below the AM broadcast band, has endorsed the articles as a seminal text on propagation.

The articles have frequently been quoted in other mediums. The full text and diagrams are now on the Internet after permission was granted by the WIA to the LWCA.

The series was by Australian LF pioneer, John VK3ACA, who, with others, ventured out to LF in the 1980s after taking out experimental licences. His pioneering was first documented in *"Experimental Stations on 196kHz"* in AR magazine, July 1984.

At about the same time it became WIA policy to seek an LF allocation for VK radio amateurs. The issue was last raised at the

WIA-ACA liaison meeting in December, 1998, and efforts are continuing to secure an allocation.

John VK3ACA's four-part series article on LF propagation in 1991 attracted little local attention at the time, but it is now the "must read" text for LowFERS (experimenters on long wave) in various countries.

In that series John said, "As far as I know no attempt has been made before to explain LF propagation in concise terms with the average interested reader in mind, and to point out where it differs from HF propagation. "It is therefore hoped that this article will become a basic reference for amateur radio on the subject of LF propagation."

LWCA recognition will give the text a much wider audience, and it acknowledges the LF experimentation done in Australia.

Lyle Koehler KOLR of the LWVCA told John VK3ACA, "I have had a copy of your article for several years, during which I have

often wished it could be made available to other LowFERS in the US. There has been a lot of discussion about propagation among some of my LowFER friends. Your article is now 'public' and is headlined on the Internet at <http://users.aol.com/twcanews>, the LWCA web page and will be a very useful reference."

Lyle also reports that there has been "a flurry of experiments" using binary phase shift keying (BPSK) by LowFERS in the US ahead of moves for amateur access to LF bands.

The American Radio Relay League asked in 1998 that the Federal Communications Commission create two low-frequency Amateur Radio bands at 136kHz and 160kHz.

The 136kHz band, a spot allocation only 2.1kHz wide, falls within the European conference of Postal and Telecommunications Administrations (CEPT) band plan.

If the ARRL gets that band it will open the way for trans-Atlantic, and trans-Pacific propagation experiments.

The second band being sought is a 30kHz segment from 160 to 190kHz.

Europe and New Zealand already have LF band allocations, and it has been WIA policy for a decade or so for such an allocation to be available in Australia.

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A Regulator Reflects

Rob Gurr VK5RG

35 Grandview Ave.
Urrbrae SA 5064

For many years Rob Gurr was employed in many roles by the government bodies that regulate our hobby and was a keen amateur operator in his own right.

I have now held my Amateur Licence for 50 years and worked in telecommunications for most of those.

In reflecting on the evolution of the hobby over those years, I appreciate most the many friendships I have made, some close and personal, with many others made at Radio Clubs, Conventions and the WIA meetings.

All have contributed to my enjoyment of the hobby. I am certainly pleased that various "optional" grades of licence were introduced over the years, starting firstly with the "Limited", followed by the "Novice" and lately with the "Novice Restricted".

From these, new Amateurs have emerged, making major contributions to all aspects of technology, operating techniques and journalism, that may have otherwise been lost to us, if the earlier conditions of licensing had continued.

I have been able to assist newcomers

obtain qualifications and construction skills, as well as help them sort out the dry joints, etc. when their equipment failed to meet their expectations.

Most of the designs I passed on came from the many publications in my library, and some were my own initiative.

In earlier years, no one ever complained when a circuit that he had published, was modified and used in a successful project.

Not so these days when many items, for example, software used in *Amateur Radio*, has a plea from the developer to send him some money to help pay for his time spent developing it.

I think that if we had asked for similar payment for the ideas we published in these years, we would have outpriced our hobby to all but the very rich.

I continue to give talks and lectures to Radio Clubs and Learned Societies, and have never felt the need to be recompensed,

for my preparation time and transport expenses to attend.

I hope this "pay me for my hobby" attitude does not hinder our radio hobby too much, in the future.

Apart from my participation in Amateur Radio, I was lucky enough to spend a career in the administration of Radio-communications Legislation mainly in Australia, with a few years in Papua New Guinea.

The changes over the 50 years in the Amateur Radio legislation, are minor compared to those the Marine and Land Mobile Services experienced.

Few Amateurs are aware of the many other services that use the Radio Frequency Spectrum, and the agonies they also endure to get their justifiable needs met from this scarce resource.

I participated in the clearance of Double Sideband High Frequency Services and the coincident introduction of Single Sideband, as well as the rearrangement of VHF Land Mobile bands to make more VHF TV Channels available.

Then there was the unsuccessful attempt to put our FM Broadcasters on UHF, at a time the only available receivers were from overseas and were on the International 88 to 108 MHz Band.

Facing up to the public with their logical

continues next page

criticism of this policy wasn't all that much fun! Thank goodness we eventually got it right.

Also of course we had to interesting days of CB Radio pirates.

What a spin off to Amateur Radio, when hundreds of licensed CBers found there was life beyond this service, and became Hams. I enjoyed coaching those interested, and many remain close friends today, even though we had some bad times in our earlier relationships.

The changes that held my continuing interest were those in the Maritime Marine Service, where the term FGMDSS became a daily conversation piece. The "Future Global Maritime Distress and Safety Service" of the early 80s has now become the GMDSS.

Direct printing Radioteletype from the bridges of Merchantmen on the high seas, 406MHz Beacons that float away from a sinking ship, giving locations from the last known Gyro Compass reading, to aid orbiting Satellites in the location of the survivors.

It was during the development and introduction of these techniques that I became a little cynical about the need for Morse Code in the Amateur Service. We no longer needed to train Morse operators, in the Marine Safety Service, whilst many highly competent persons not able to face the Morse tests in the Amateur Service, were giving up, and being lost to our hobby.

In the area of my work, high level Public Service Administrators, without any concept of Morse Code, were heading the pressure on ship owners to comply with the FGMDSS.

At the same time these same officials were giving no relief to the Amateur Service's cry for some consideration, even though it was obvious there would very soon be no need for Morse!

The Radio Frequency administrators still require Morse for our Service?

Do they really need it, or is it in our hands to be more realistic about these matters? I have often sent Baudot and ASCII at 10 words per minute for testing...I hope I am never asked to copy that down in my own handwriting!

What would be the use unless all my amateur contacts could do the same thing.

Don't blame me, I left the real world of Regulation 11 years ago, and it feels good on the other side of the counter.

What a hobby, one of the best in the world. Let's keep it that way. 73
Rob Gurr has also operated under the calligns VK2ARQ VK1RG (Macquarie 1)
VK9RO and VK8RO

ar

The Need for Morse Code

Another Viewpoint

By G3WGV

Submitted for discussion by David Pilley VK2AYD.

The following is a copy of the submission made by the First Class CW Operators' Club to the RSGB dated August 1998.

Introduction

Authorities throughout the world, notably UK, USA and Canada at this time, are considering the basis of licensing for the Amateur Radio service.

Key issues include the matter of Morse code as a requirement for access to the HF bands and the more general considerations of access standards and licence classes.

The RSGB has a primary influence on Radio Amateurs' relationship with the Radio-communications Agency and has requested input to the debate from Radio Amateurs and Radio Amateur organisations.

The First Class CW Operators' Club (FOC) is a British club with members throughout the world. Many of its 500 members are UK licence holders.

FOC is an activity club dedicated to excellence in Morse code operating on the Amateur bands. Membership requirements are stringent and the world-wide membership is limited to 500.

FOC respectfully makes the following submission for consideration.

The role of CW

Morse code (CW) has a distinguished history which predates radio communication by several decades.

It remains an efficient and cost effective means of communication, especially for Radio Amateurs who in many parts of the world operate on limited budgets and with poor access to modern technology.

Historically a knowledge of CW has also been perceived as a reasonable pre-requisite for access to the HF bands.

These are thus two separate issues here, namely USE and PREREQUISITE, that should be considered independently.

CW as a means of communication

FOC proposes that CW is a valid means of communication today and in the future.

Although CW has been largely (not totally) replaced by other means of communication in the commercial world,

this in no way compromises its validity as a means of AMATEUR communications. Consider:

1. At virtually any time of the day or night, a scan across the Amateur bands reveals as many, if not more stations using CW as are to be found on any mode. CW Contests, for example, continue to attract increasing participation and standards continue to rise;
2. Generally, the extremes of behaviour (eg bad pile-up discipline, foul language etc.) are far less evident on CW than on speech modes;
3. There is plenty of empirical evidence that CW operators ENJOY their hobby more and put more back into the Amateur radio service;
4. CW is bandwidth efficient and can be sent and received with simple equipment.
5. There are many occasions where CW is the optimal mode and sometimes the only mode that will work. Consider aurora, moon-bounce and QRP activity;
6. The art of good CW is a genuine skill that sets its exponents apart from the norm and validates the concept of self training, an important part of the *raison d'être* of Amateur Radio. The argument that CW is no longer prevalent in the commercial sector is thus irrelevant and should be discontinued. CW is relevant to Amateur Radio and has an important place now and into the future.

CW as an access prerequisite

If CW is a valid means of Amateur communication, then is it also a reasonable access prerequisite for HF operation?

FOC considers that it is but one of the range of expressions of capability which might be tested as part of the licensing requirement. Thus:

1. A CW test in isolation is not rational: why not an English elocution test for SSB or a typing test for data modes? The requirement dates back to a period

when these other modes were not common-place. Had they been, then no doubt the then licensing authorities would have specified a need for related tests;

2. The CW test, as it stands, in no way prepares the candidate for CW operation on the air. Very little CW is sent at 12 wpm these days and even less is sent on a straight key. The test is thus something of an anachronism as it stands;
3. Yet the test does have validity in that it requires some commitment from the examinee to meet its requirements and as such imposes a QUALITY ASSURANCE process on those who wish to operate on HF. It can be seen then that the CW test is useful as one of a range of access qualifications but that its standard is inadequate given the present-day use of CW on air.

Regulating access to the bands

It is clear that CW has been part of an access regulating process. Some factions argue strenuously that it is no longer a valid regulator and in principle, FOC has sympathy with this view. However, it is not acceptable to remove the requirement without considering what might replace it.

FOC considers that the standards required for general access to the HF bands must NOT be lowered further. The following reasons are advanced for this assertion:

1. Radio equipment is increasingly hard for the home enthusiast to maintain. The self training that used to occur from home maintenance is therefore not readily available and other ways must be found to ensure the knowledge is extant;
2. The general level of competence displayed on the bands today is much lower than in generations past. This is despite the hobby becoming far more complex in the meantime. A further competence reduction will compromise the standing of Amateur Radio service and contribute to its decline;
3. There is a tendency towards INSTANT GRATIFICATION expressed as an unwillingness to work for something that is worthwhile. Yet something that is achieved without effort will tend to have little perceived value and therefore not worthy of protection. Amateur Radio should be perceived as a worthy goal which justifies the effort required to attain it;
4. Radio communication and technology skills are what differentiate Amateur

Radio from unregulated services such as CB. De-skilling Amateur Radio will ultimately remove that differentiation, with inevitable consequences.

Replacing/supplementing Morse Code

FOC considers that competence in Morse is and will remain a core requirement for active proponents of the hobby.

However it is also recognised that there are many other competencies equally important, most of which are not tested in any way whatsoever under the present licensing regime.

Morse code should therefore be considered one of a set of tests that might be imposed for a given class of licence.

It might even be that some level of choice may be exercised by the examinee. There might be six (say) components to a given test, of which Morse is one. Candidates are required to pass at least four of these but have a choice regarding which four they attempt.

Examples of components that might be in such a test regime include:

- Morse code
- Construction skills
- HF operating skills
- VHF operating skills
- Contesting
- Digital modes
- Special communications (moon-bounce, aurora, etc.)
- Antenna technology
- Propagation
- Safety in the shack

Morse stands its ground as a pre-eminent communications mode and does not require an obligatory test to reinforce its status.

It should take its place amongst a family of competence tests that collectively demonstrate the capability of the individual to be a Radio Amateur and to maintain the status of the service.

Maintaining standards

From the above, it is concluded that there is a clear case for maintaining standards and that this is, in large part achieved by access controls.

FOC considers that there is a strong case for ENHANCING the standards in Amateur Radio and this raises the concept of a range of licensing levels. This might also be called INCENTIVE LICENSING and it is a practice that has existed in other countries, notably the USA for many years.

It is interesting to reflect that the highest class of licence available in the UK is barely the equivalent to the USA General Class, the third in a five level licensing system.

Although there has in recent years been a two tier system in the UK (Novice and Full)

and differentiation between HF and VHF articulated by the need for Morse, this hardly constitutes an incentive licensing system.

Licence class proposals

FOC proposes a three level licensing structure with the middle class broadly similar in standard to the present Class-A licence.

HIGHER OR EXTRA CLASS

FOC considers that there is an excellent case for classes of licence beyond Amateur "A" which keen exponents of the hobby might pursue in return for enhanced facilities.

Golden opportunities to introduce this were missed with, inter alia, the awarding of 6m and the WARC bands. another opportunity is clearly afforded by the long overdue need to bring UK power levels into line with Europe. The UK "Extra Class" could be the way such a move could be palatable to the Authorities.

This class should carry with it a CW capability requirement that is consistent with standards on the bands today; probably about 20 wpm as a minimum. The class could also confer privileges such as exclusive access to desirable portions of the bands.

GENERAL CLASS

The present A-class licence represents a bare minimum in terms of knowledge required vs. benefits conferred. It is clearly preposterous to suggest that this represents too high a level for aspirants to achieve.

One need only consider the vast number of people, this author included, who were able to pass the much harder written test of 30+ years ago at the tender age of 15.

We are by common consent a better educated nation than we were 30 years ago so what possible logic can there be in REDUCING standards? CW might be one of the optional modules for this class of licence in the manner discussed above.

NOVICE LICENCE

Finally, a case does exist for an entry class licence to act as a "taster" for those who are unsure whether their interest will mature.

In the past this would have been via an APPRENTICESHIP as a Short Wave Listener. Regrettably this seems no longer to happen, with all too obvious effects on our bands today.

The novice licence scheme introduced some years ago seems to provide a fair basis and should have a place in a new scheme. There is scope for improvement to the class but that is outside the scope of this paper.

HF/VHF DIFFERENTIATION

There seems little point in perpetuating this class distinction which has, since its inception, been divisive.

If we accept the provision that CW is no longer the sole prerequisite for access to the

continues over

HF bands then the need for HF/VHF differentiation disappears. The same arguments, presented above, for higher levels of demonstrated competence apply equally to VHF.

It might be argued that VHF is technically more challenging and that even CW has an important place at VHF by virtue of its pre-eminence in aurora and moon-bounce activity.

FOC therefore proposes that there should be no HF/VHF differentiation from a licence requirements perspective.

TRANSITION

An awkward problem to be resolved is transition from existing Radio Amateurs into a new licensing class structure.

As a general principle, it is proposed that retrospective legislation is inappropriate and that therefore it is not feasible to annex privileges from those that already enjoy them.

Thus, if spectrum segmentation by class were adopted, the current Class-A licensee would have to be offered the highest class licence in the new structure, simply to keep what he already has. Similarly, should the new licensing regime contain limitations on the use of frequencies above 30MHz, current Class-B licensees would have to be offered the licence class that did not carry such limitations.

Conversely, if the only differentiator between classes were to be privileges not yet conferred, such as higher power, then the transition process is simplified and existing licensees would become General Class licensees with the option to upgrade. This simpler proposition is perhaps more palatable.

New licensees, or those seeking greater privileges to those currently held would be obliged to satisfy the criteria associated with the enhanced privileges desired.

Band planning

Over the years, the CW segments of virtually all Amateur bands have been eroded by the emergence of new modes and in some cases by encroachment from existing modes.

Broadly this has been accommodated by the CW fraternity because of the inherent spectral efficiency of CW together with improving selectivity in equipment.

If CW is dropped as a licence requirement, it opens up the prospect of greater use of the HF spectrum and by definition these new users would be using modes other than CW.

A strong case can be made for keeping and perhaps even reinforcing band plans. It might be that compulsory band planning would be required to offset the inevitable tendency for the relatively inefficient voice modes to usurp CW spectrum. Some bands may require a review of sub-band edges. There is no doubt that the CW segment could be reduced on some, notably 28MHz.

This may give an opportunity to define a class of licence specifically using that recovered spectrum. But the 10.1 MHz band would have to be strenuously protected from encroachment of wide band modes, including SSB.

Assuring the future of Amateur Radio

FOC asserts that the future of Amateur radio is not aided by the remorseless reduction of standards that seems so prevalent in other walks of society today.

Yes, Amateur Radio has to appeal to people of all age groups (not just the young) in order to survive but it is a myth that licence requirements are a barrier to that appeal.

Amateur Radio will survive by remaining a worthwhile pastime which requires commitment and offers a lot in return. This is the route to long term participation.

Reduction in standards may see a short term influx, but is unlikely to result in sustained long-term interest. Easy come, easy go.

There are other very real barriers to the growth of the hobby. The Society would be well advised to focus on matters such as

- RAE is operation. It is preposterous that one can only sit the RAE twice a year and that the results take months to arrive. It is also outrageously expensive. These factors create a real obstacle to the aspiring Radio Amateur at a time when commitment is unclear. Contrast this with the Americans test system which is superior in every way;
- The tendency for people to live in ever smaller properties, combined with ever more onerous and expensive planning permission issues. This is a real barrier to HF operation in particular.
- The illogical urge to compare Amateur Radio with, for example, the Internet and computers. They are totally different and in many regards complementary. Amateur Radio uniquely provides a way to communicate without needing to use (and pay for) someone else's infrastructure. Amateur Radio's "Internet" is a natural phenomenon: the ionosphere;
- The service element of Amateur Radio. Certainly we live in a country where natural disasters are, thankfully, very rare and a good infrastructure generally exists. Amateur Radio has nevertheless shown its capabilities in recent years in disasters such as Lockerbie and has provided a basis for a productive career in electronics and telecommunications;
- The way Amateur Radio is marketed to and perceived by the general populace.

FOC position and recommendations

This paper has sought to discuss the general issues relating to Morse code and expand into areas such as licensing and the place Amateur Radio should occupy.

Summary

1. CW is and will remain a valid mode for Amateur Radio use, both because of its useful characteristics and for its pure enjoyment; 2. CW can no longer be considered uniquely appropriate as an access control to the HF bands;
3. CW should be one part, possibly optional amongst a group, of access controls;
4. The standard of access requirements must not be diluted and could usefully be increased to take account of the greater technical complexity of today's Amateur Radio;
5. There is scope and pressure for a higher class of licence than the present A-licence;
6. There is scope for a higher speed CW test as part of the proposed higher class licence requirements.
7. Transition between the current licensing regime and the new structure should be done on the basis of no loss of privileges for those presently holding licences. Those wishing to upgrade or obtain a new licence do so by obtaining the appropriate qualifications.
8. There is scope for simplification of the process by which licences are granted, in particular by reforming the way the RAE is operated;
9. The issue of commitment to the hobby will not be satisfactorily resolved in the longer term by reducing the competence levels required for a licence;
10. There are socio-economic issues that prejudice the continued wellbeing of Amateur Radio, including population pressures on housing and open space;
11. Poor marketing of Amateur Radio has it being perceived as a "Greek pastime" with no account taken of its considerable contribution to society and industry;
12. We must stop drawing comparisons between Amateur Radio and computer/ the Internet.

Do you have some thoughts on this point of view?

Do you agree or disagree?

The editor would love to have your comment.

FOR ALL YOUR COMMUNICATIONS NEEDS

2m 30W RF Power Amplifier

Ideal for use at home or in the car. It works with inputs from 0.5 to 5W, and produces up to 30W output with just 3W input. A switchable 12dB gain low noise GaAs FET receiver pre-amp is included for use in quiet RF areas. The amplifier includes a large heatsink, fused DC power lead, SO-239 input/output connectors and simple LED metering for DC supply voltage and relative RF output power. Frequency range 144-148MHz FM only, but can be modified for SSB use. Requires 13.8V DC at 6A max. Size: 125 x 48 x 147mm (VWDH) including protrusions. D 2515

\$129⁹⁵



3-15V 25A Heavy Duty Power Supply

This solidly built benchtop power supply provides current of up to 25 amps ICA5 at 15V, 20 amp continuous at 13.8V and lower current at lower voltages. It has front panel metering plus high current banana-style and low-current output connections. An internal heatsink and thermally switched fan provides cooling without protrusions in the metal case. Specially modified for more reliable, long-term operation, it uses a rugged 50 amp bridge rectifier & trifilar transformer. Also provided is extensive overload protection through dissipation limiting circuitry for the pass transistors, a 30 amp instantaneous current limit, AC mains circuit breaker, a transformer thermal fuse & fused auxiliary secondary winding. D 3800



Great Value!

\$299

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1kW (PEP) power handling. Wide-band coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, <2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at 2:1 SWR. An optional 30m resonator kit can be installed without affecting operation of other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with radial system. Unlike other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable. D 4920

\$449

HUSTLER

30m Resonator Kit

Adds 30m coverage to the 5BTV and includes all hardware. D 4921 **\$99.95**

BONUS OFFER! Purchase the 30m resonator (D 4921) with the 5BTV vertical and pay only half price for the 30m resonator!



\$299^{ea}

Revex W570 HF/VHF/UHF SWR/PWR Meter

Top of the line performance! The W570 provides switchable 1.6-160, 400-525, 700-1100 and 1240-1300MHz coverage, with measurement of 3 power levels (5.20, 200W) and SWR. External UHF sensor uses N-type sockets with remote mounting for easier cable connection to the meter. Measures 120 x 80 x 155mm. D1377

Yupiteru MVT-9000EU Deluxe Scanner

The Yupiteru MVT-9000EU is an amazing new Japanese handheld scanner that provides wide 531kHz to 2039MHz frequency coverage, a large and informative backlit LCD screen and excellent sound quality. All-mode reception capabilities are provided, (FM, W-FM, AM and SSB modes) plus there are 18 selectable step rates between 50Hz and 125kHz to allow the best tuning choice for the signals being listened to. For easy storage of popular frequencies the MVT-9000EU provides 1000 memory channels (20 banks of 50 channels each) which can store frequency, frequency step, reception mode as well as the Attenuator setting. Selected memory banks can be scanned to check on activity at a rate of up to 30 channels per second. Search operation is provided across 20 bands with 500 Search Pass memories provided to "lock-out" unwanted frequencies for more efficient Search operation.

Other features include:

- In-built ferrite rod for AM broadcast band reception
- A Band Scope function allows checking of adjacent channel activity, with two selectable Scope bandwidths. Using the Marker mode you can substitute the centre frequency with a moveable marker, so you can see the frequency and hear the audio of specific adjacent signals
- 10 priority channels
- 50 Autowrite memories to store active frequencies during Search operation
- Title editing for Band, Bank and Channel name is provided

Complete with NiCad batteries, AC plugpack charger, car cigarette lighter lead, antenna, carry strap and belt-clip. D 2797

YUPITERU \$999



FOR ALL YOUR COMMUNICATIONS NEEDS

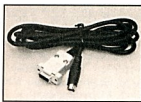
Advanced Data Management Software

An advanced way to program many of the functions of Yaesu handheld and mobile transceivers. Each package consists of an interface that plugs into the serial port of a PC and connects to the transceiver via its microphone socket (for handhelds) or its Packet socket (for mobiles). Also provides easy-to-use 3.5" (inch) PC software with pull down menus that allow for programming and naming of memory channels, selection of output power, CTCSS tones, scan and battery saver operation, plus much more.

ADMS-1D suits FT-10, 11R, 50R/RD, 51R, VX-1R D 3753

ADMS-2D suits FT-3000M, 8000R, 8500, 8100R D 3759

\$89⁹⁵ea



LP-1300 Log Periodic Yagi

The Maldol LP-1300 is a Log Periodic Yagi beam antenna designed to provide useful gain across the 100 to 1300MHz range. Ideal for scanner enthusiasts and ham operators needing a directional wideband antenna. Consists of a 17-element Yagi with a special feed system providing low SWR (less than 2.0:1) across the 100-1300MHz range.

Gain: 6.0dBi to 10.0dBi
Boom length: 1.46m
Suitable mast: 28-60mm diameter

Max wind speed: 40m/sec
Max power: 500W
Connector: SO-239
D 4828

\$269



FT-50RD 2m/70cm Handheld

The Yaesu FT-50RD is an amazingly compact 2m/70cm amateur band handheld transceiver which provides MIL-STD 810 shock and vibration resistance, super wideband receiver coverage, simple menu settings for most functions, and compatibility with the optional Yaesu ADMS-1D software/interface package for PC programming of many functions.

Other features include:

- Tx 144-148MHz, 430 - 450MHz
- Rx 76-200, 300 - 540, 590 - 999MHz (cellular blocked)
- FTT-12 keypad provides Digital Voice Recording, CTCSS/DCS scanning, and CTCSS encode/decode
- 2m/70cm RF output: 2.5, 1.0, 0.1W standard, up to 5W with 9.6V battery or 12V DC socket
- "Omni-glow" LCD screen for easier night-time viewing
- 112 memory channels with 4 character alpha naming
- Dual watch allows monitoring of sub-band activity
- Direct FM modulation for better audio quality

- 5 battery saving systems (includes Rx and Tx Save)
- Comes with FNB-40 slimline 6V 650mA/H Nicad battery pack, flexible 2m/70cm antenna and modified M-9626 AC plugpack adaptor for Nicad charging D 3660

**YAESU
BONUS!**

Pay only half-price for a second Nicad pack when purchased with the FT-50RD. Limit one per customer. Applies to FNB-40, 41, 42 only.

2 YEAR WARRANTY

\$569



FT-8100R 2m/70cm Mobile

The stunning new Yaesu FT-8100R is a state-of-the-art 2m/70cm band mobile transceiver that combines high power and the industry's most versatile memory system with an excellent wideband receiver and solid construction. Its US MIL-STD-810 shock and vibration rating is your assurance of years of reliable operation. Includes hand mic, mounting bracket and fused DC power cord.

Other features include:

- 198 memory channels
- 1200/9600 baud packet socket
- Inbuilt antenna duplexer
- Inbuilt crossband repeater facility
- Dual receive capability (VHF/UHF, VHF/VHF, UHF/UHF)
- Optional removable front panel

Frequency range: Tx 144-148MHz, 430-450MHz
Rx 110-550MHz, 750-1330MHz (less cellular)

Output power: 2m: 50, 20, 5W
70cm: 35, 20, 5W
D 3314

2 YEAR WARRANTY

\$949



YAESU

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OVER TO YOU

Membership

I've been prompted to write this letter by the negative vibes I keep getting every time I read AR magazine — members more members.

First I'll try to explain, I'm 50 years old, a mechanic by trade and a CBER for more than twenty years. A CBER you say; but haven't you people obtained many VKs from CB ranks? (I'll be there shortly).

In Carnarvon there are four VKs in town. Only one was really willing to help me to get my VK.

One in four, is that the norm?

Derek—VK6DSL has been of invaluable assistance—I have his OK to print his name.

I received an FT1000MP for Christmas, a very nice radio—Derek comes over and we work the world—beautiful.

One day, I'll be able to work it on my own. In all fairness, the WIA people and Rex in Exmouth, were also extremely helpful in my quest to obtain my VK.

If you people wish to recruit more members, I feel some attitudes may have to change. After all, we all have a common interest.

More promotions in the country would certainly help—Try finding an examiner in Carnarvon! Communications are so vital in the bush—especially WA. We have been known to drive 200 km for a beer!

I've joined the WIA as a member; the more the merrier and I'll think we'll all be better off. If you can't beat them, join them!

In closing, may I wish everyone in the WIA and all the radio enthusiasts, all the best for '99 from Carnarvon.

PS Keep printing AR, one of the few direct contacts we have!

Kon Brasche L60411

P O Box 170
Carnarvon 6701
(CB WAA556)

More on Coax vs Cockies

Referring to your article on cockatoos chewing up coax cable.

In my experience, they only go for the highest parts, near the antenna.

If a length of garden hose is slipped over the last few metres of coax, they are no longer interested. Even if your cockies are hungrier, it gives them something to chew on before they do any damage.

Dave Gibbons VK1GD

PO Box 3 Hawker
ACT, 2614 Australia
Darogi@pcug.org.au
vk1gd@vk1bbs.act.australia

Goodbye — Hello

We have our VK5 Division AGM in April and after that I will no longer be the Divisional President.

The VK5 Division constitution states that you cannot be President for more than 2 consecutive years. (Very wise)

It is thus quite likely that someone else will be writing the VK5 Notes in future.

I have enjoyed doing so for the last 2 years although with the many other tasks I have taken on as President I could do with a rest.

I will not necessarily be taking a back seat, however, in many ways I will not be so bound to be as "diplomatic" as a President needs to be. (You can read whatever you wish into that statement. Hi.)

I wish to express my thanks to Bill Rice VK3ABP.

I also ask that it be conveyed to Bill Roper VK3BR, June Fox and the Federal Office staff, for the cooperation shown to me both as a Divisional President and also as a correspondent to "Amateur Radio" magazine.

At the same time I wish to acknowledge the work of all the members of the Magazine Committee without which we would not have such a good publication.

When one considers the amount of effort provided on a voluntary basis we can only be grateful for such people dedicated to helping in this way.

My best wishes to all concerned.

Ian J. Hunt

e-mail: ianh@picknowl.com.au

Packet Radio:

VK5QX@VK5LZ.#ADL.#SA.AUS.OC

Tel: +61 8 8250 1708

(Farewell Ian — Editor and his staff)

Exams Comment

With reference to the "Education Notes" by Brenda VK3KT on page 34 of the February issue of *Amateur Radio* may I offer some input to the examination debate?

1. Examination venues should be reasonably accessible to the candidates.
2. The Morse code may have to be dropped as a trade for on-air operating procedures as part of the Regulations examination.
Yes, it's a touchy subject but we must face it!
Certainly the standard of many operators coming on to the Novice frequencies leaves much to be desired.
3. A pass mark of less than 70% would not be a fair indicator of a student's ability to understand the subject.
4. The suggestion of using one theory paper with two marking levels would cause much dissension.
5. Multi-choice questions cover a wider range of a subject than is possible with a "written exam".
6. There are possibilities for only two classes of licence, but that's something for discussion after the changes already mentioned are ironed out.

Max Morris VK3GMM

"Erehwon"

60-62 Observation Drive
Rye Victoria 3941

Do you have a point of view about something you have read in *Amateur Radio*?

Or about the hobby itself.

Or perhaps some news about people connected with amateur radio.

Share it with us and your fellow amateurs.

These are your pages.

The Editor *Amateur Radio*
PO Box 2175

CAULFIELD JUNCTION VIC 3161

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Tel: (03) 9528 5962

Fax: (03) 9523 8191

Deadlines: by about the 15th of month prior

SPECIAL

FIVE for the Price of THREE

— Well Almost!

There still seems to be a lack of awareness about the cost of renewing the station licence for \$168 for 5 years.

This compares more than favourably with five times the yearly renewal fee of \$50. (ie \$250!)

So next time your licence renewal arrives from the ACA, consider the savings you could make.

73 Neil Penfold VK6NE

Silent Keys

Ross VK6DA

On 22 June 1998, amateur radio lost one of its most respected voices that of Ross Greenaway VK6DA.

Born in 1926 Ross lived all of his life in Leederville.

In 1944 and 18 he joined the RAAF and served as a radar technician until 1946.

With this sort of technical training it wasn't surprising that Ross discovered amateur radio.

He was first licensed in 1963 and began a long association with the WIA, culminating in two terms as State president 1975 and 1978. He was a keen member of WICEN and served terms as an intruder watch officer and Morse practice officer.

He also published a VK6 newsletter *The Bulletin*.

As an enthusiastic supporter of the Guides and Scouts Associations, JOTA was always an annual highlight. The RD contest was another favourite.

His contributions to amateur radio were rewarded in 1979 with life membership of the WIA. A proud moment for Ross.

Upon retirement in 1987, Ross turned his attention to the travellers and realised that a large number of VK amateurs did not have access to the established 20m net.

Never a person to sit back and wait for others, he started a daily net on 15m. It is a tribute to him that, 10 years after its inception, the 21.105 net is as strong as ever.

To Ross, amateur radio was not only interesting but fun. He could never resist the opportunity to crack a joke, usually at his own expense.

No tribute to Ross can exclude his wife June. She shared and encouraged his love of amateur radio.

There was always tea on offer at the VK6DH QTH.

Finally, though the key may be silent, for those of us lucky enough to have known him well, the memories will remain.

He hasn't really gone QRT, just QSY.
Vale Ross

J Baxendale VK6 JD

VK3 Mike November

The sudden death of Milton Crompton on Sunday, January 3rd, 1999 was a shock to all who knew and admired him.

Milton was multi-skilled and expert in each field he worked in and a perfectionist in all the equipment he made, from a lathe and a honeycomb coil-winding machine to a great variety of electronic equipment.

First licensed just before World War 2 he obtained both an amateur licence and a broadcast operator's licence. He liked changing jobs and disciplines. He first worked in radio manufacture, then service. Through the war he taught Radio Theory and Laboratory Practice at R.M.I.T. in Melbourne. Then he spent a period working on electronics at the Defence Research Laboratories.

He became a Senior Engineer at the Rola Company, famous for loud speakers and tape recorders. He worked as Maintenance Engineer for an Audio and Video agency. His last job was in Cinematography at the Victorian Film Laboratories.

Somewhere in all this was a period he spent in England studying Television before its introduction here in Australia.

Somewhere else in this series of changes there were two periods each for a few years when he owned shops selling and servicing radio and television equipment. As VK3MN he kept morning and afternoon 40 metre skeds. He was one of the amateurs involved in maintaining essential contact with Government Authorities during the Darwin Cyclone disaster. He was an early member of the Moorabbin and District Radio Club and served an early term as President.

In later years - in conjunction with his long time friend, Doug Richards VK3CCY, he raised a lot of money for the Club by clearing out the radio equipment of deceased members on behalf of the families concerned.

He was one of a small group of members of the Moorabbin Radio Club who revitalized VK3AOM at the Science Museum of Victoria when the VK3 Division of the WIA moved their Sunday broadcast to Lyndhurst.

Milton became part of our ROATC broadcast team a few years ago and a member of our committee about two years ago. He is survived by his wife Rita, his son Barry, his daughter Pam and her husband and children.

A large group of amateur operators attended Milton's funeral on Thursday 7th January 1999.

Rest easy Milton OM.

Allen Doble VK3AMD

For the Radio Amateurs Old Timers Club of Australia

QSP NEWS

QSLING FOR VK5MIR VOICE CONTACTS

Provision has been made for a special QSL card for contacts with VK5MIR that was the occasion of

"THE FIRST USE OF AN AUSTRALIAN RADIO CALLSIGN FROM SPACE"

Members of the VK5 Division of the WIA saw fit, at a General Meeting, to vote for the costs of such a QSL card to be borne by the Division. A suitable card is being produced.

Those who made voice radio contact with Andy Thomas, operating as VK5MIR on the Russian Space Station, may obtain a commemorative QSL card for the contact.

Simply send your own QSL card accompanied by a self addressed stamped envelope (SASE) to

Ian Hunt VK5QX
8 Dexter Drive,
Salisbury East,
South Australia.
5109

It has been decided that a "cut off" date will be set for receipt of requests for a VK5MIR QSL card. Cards received after that date would not be acknowledged.

The "cut off" date is 31 MAY 1999

Requests for the QSL card must be postmarked no later than this date. Any received beyond this postage date will not necessarily be acknowledged.

The reason for this approach is that we do not have any definitive log for the VK5MIR operation and thus no idea as to how many cards may be required.

We also wish to keep costs for the cards to a reasonable minimum.

I would ask that you also spread this information to non-WIA Members where you think that they may have made contact with Andy Thomas as VK5MIR.

Again, I emphasise that this applies only to "voice" contacts.

Requests for QSLs for Packet Radio contacts with the MIR Space Station should be sent to the USA address provided for ROMIR.

Ian J. HUNT VK5QX

Amateur Radio

reporting on technique and
opinion in the world of
Amateur Radio

CLUB NEWS

Blue Mountains Amateur Radio Club Inc

PO Box 54 Springwood NSW 2777

The club is alive and well and continuing to grow both in member numbers and in club activities.

At the 1998 Christmas Party and Homebrew competition, the club instigated the "Rex Black Memorial Trophy," in remembrance of service to the hobby by Rex. This year it was awarded to Kevin Purves VK2MNU, for his outstanding commitment as the club magazine Editor.

Over the coming year, the club will be involved in the following activities: -

- * Participation in the John Moyle Field Day Competition, 24 hour, open mode section, using the Club Callsign VK2HZ Portable.
- * Co-sponsoring of the NSW VHF DX Group VHF FM DX Competition, to be held on Sunday 18th April 1999 from 0200-0600Z.
- * Club Fox Hunts on Friday evenings, as well as daytime Fox Hunts, open to all comers.
- * Installation of the new 2m repeater transceiver, replacing the original radio that suffered a fatal attack of final transistor failure. The site will soon include a 70cm repeater.

The Club web page, which is getting better all the time, can be found at <http://www.mis.net.au/leatbeam/bmarc>

On the page is information about the Club, a membership application form, Philips FM900 articles, repeater photographs and information, links to other sites, a Ham Radio search engine and much more.

The Club holds weekly nets on 80m (3.543 MHz LSB) on Tuesday evenings at 8:00pm local time and 2m (147.050+) on Wednesday evenings at 8:00pm local time.

**Send your club
news and events
to Club News**

The Shepparton and District Amateur Radio Club Annual Hamfest

Will be held on Sunday September 12th 1999 at the Shepparton Youth Club Hall behind the High Street Safeway complex as in 1998.

Tables approx 2 metres for hire at \$10 each. Doors open to sellers from 7am - buyers from 10am.

Booking and payment would be appreciated early as tables not occupied by 9am or not paid in advance will be reallocated.

C/O the Secretary
SDARC
PO Box 692
Shepparton 3630

HF NET Commences again

Well, daylight saving is over at last and that means that the

Moorabbin HF Monday Night Net returns to the airwaves.

The frequency will be 3.567 MHz commencing at 8pm (1000 UTC).

As usual the now very popular VHF net will still commence at 7.30pm (0930 UTC). So if you live in country Victoria or even interstate, you can now talk directly with the club on HF.

MDRC

BARCfest 1999

The Brisbane Amateur Radio Club BARCfest this year will be held on

**Saturday May 8th,
at**

**Kelvin Grove High School
Auditorium, Victoria Park
Road, Kelvin Grove.**

Opening at 9am.

**For early bookings ring
VK4KDP on 32884911 or
post to: - PO Box 3007 Darra
Qld.**

The WIA's Victorian Foxhunting Championships

The WIA's Victorian Foxhunting Championships will this year be held on

Saturday 8th May.

The location this year will be in the

Doveton area

The day will be split into an afternoon and evening session with dinner in between.

The events will get under way at 1pm so those who want to pick up a bargain at the Moorabbin hamvention can still do so.

The afternoon's events will include all the usual bands with the evening session starting at 8pm so those teams who only have 2m and 70cm gear can participate as well.

Supper and prizes will be around 10:30pm in the Dingley Village area.

For further details contact Mark Diggins on AH 03 9558 2959.

**If you have some club
news to share.**

**Or an event to publicise.
this is the place.**

The

CLUB NEWS

pages are your pages.

Send your information to

The Editor Amateur Radio

PO Box 2175

**CAULFIELD JUNCTION
VIC 3161**

email armag@hotkey.net.au

Fax (03) 9523 8191

MOORABBIN & DISTRICT RADIO CLUB INC

HAMFEST

The date for the Moorabbin Hamfest this year will be
Saturday May 8th, commencing at 10 am.

The venue is the

**Brentwood Secondary College,
Watsons Road, Glen Waverley.**

As in previous years there will be lots of second hand gear for sale as well new equipment of course.

Refreshments and snacks will be available during the day at reasonable prices.

There is something new for the event this year, a crystal set competition. Full details are shown further down.

So why not have a go at something different. Most of us have had a dabble at a crystal set at least sometime or another while exploring the world of radio.

If you are considering having a shack clearance, well, why not book a table.

**Contact the coordinator Wally
Hunt VK3JWH on (03) 9318 0197
or mobile 0419 356 263.**

COMPETITION & CONTEST

Are you looking for something different to do, bored with the same old usual things to do, well have look at the rules for the Crystal Set competition for this years Hamfest or Radio on Rails, on Sunday April 11th.

Rules and information are shown below. You never know. You could be a winner.

INTERNET HOME PAGE

The club Internet home page is still developing and has recently had some changes made to it.

As well as the latest news about the club there is also many links to other sites with a very wide range of radio related topics.

So point your browser to mdrc.org.au

Comments and suggestions on the content are always welcome and should be forwarded to Paul Girling VK3ALE by just clicking on the link provided.

PACKET GATEWAY CLUB CONTACT

Enquiries about the Moorabbin & district Radio Club Inc., can be forwarded to P O Box 58, Highett, 3190, or through the club home page on the Internet.

Denis Babore VK3BGS

Publicity Officer

MDRC Even Greater Crystal Set Competition — Rules

1. The competition will be held during the MDRC Hamfest on Saturday May 8 at the Brentwood Secondary College, Glen Waverley.
2. Entries must be submitted by 11 am. The underside or rear of sets should be marked with the entrant's name and call sign. No entry fee is payable.
3. Entries that contain any active amplifying devices such as valves, transistors, ICs, etc or be connected to any external power source will not be eligible for certificates or prizes.
4. Entries should cover the AM broadcast band.
5. A basic aerial and earth system will be provided at the Hamfest site. The judges will use a small, fixed-gain audio amplifier with an input impedance of approximately 30 k ohms to assess the performance of each set. Either a locally generated modulated signal or local broadcast stations will be used by the judges for this test.
6. Certificates will be awarded for:
 - Best overall performance
 - Most authentic
 - Smallest
 - Most selective
 - Most novel
7. The Club may award small prizes to winning entrants.
8. Results will be announced on the day, at the next MDRC general meeting, in the APC Newsletter and in *Amateur Radio* magazine.

MDRC Radio on Rails Contest - Rules

Object: To make contact with operators on board trains and trams around Melbourne.

Date: Sunday, April 11

Time: 9am - 1pm

Band: FM voice segments of two metres only

Mode: FM

Sections:

- A. Transmitting Mobile (in train or tram, also includes waiting at railway stations or tram stops)
- B. Transmitting Home (includes operators at home or in a car)
- C. Listening Mobile (in train or tram, also includes waiting at railway stations or tram stops)
- D. Listening Home (includes listeners at home or in a car)

Contacts: Train or tram mobile stations may work (or hear) any station for points. Home station entrants may work (or hear) train or tram mobile stations only for points.

Repeat contacts: Repeat contacts are valid for scoring purposes provided at least one hour has elapsed between them.

Use of repeaters: Contacts on repeaters count for scoring purposes.

Exchange: Train or tram mobile stations give their nearest railway station, tram route number or tram stop location (if waiting). Home stations give their suburb. No serial numbers are required.

Eyeball contacts: Stations in Sections A and C may claim extra points for 'eyeball contacts', which is defined as one where participants can shake hands with one another on a train, tram, and railway station or tram stop. Pre-arrangement of eyeball contacts before the contest start time is not allowed. However, eyeball contacts may be arranged during the contest period on two metres FM only. Unlike with radio contacts, entrants cannot claim extra points for repeat eyeball contacts with the same person. Amateurs or SWLs not active in the contest cannot be claimed as eyeball contacts.

Scoring: Score 1 point per station worked (or heard). Total score is the number of stations worked (or heard) plus the number of valid eyeball contacts made.

Logs: Logs should show time, frequency, call sign and exchanges for each contact. Eyeball contacts should also be logged. Train or tram mobile entrants should staple their used Met ticket to their log. Where this is not practical (eg ticket remains current after the contest), a signed photocopy of the ticket will be accepted in lieu.

Logs should be posted to *Radio on Rails*, MDRC, PO Box 58, Highett, Vic, 3190. Logs should be received by 30th April 1999.

Certificates: These will be awarded to the first three placetakers in each section. Other entrants will receive participation certificates.

Results: Results will be announced in the MDRC's newsletter and AR magazine.

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NOVICE NOTES

Peter Parker VK3YE

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Email: parkerp@alphalink.com.au

Novice Notes Online: <http://www.alphalink.com.au/~parkerp/online.htm>

Please note that this is Peter's correct address.

I think that I will never see an antenna hidden in a tree

Where it is not possible to erect stand-alone masts, trees are good ways of concealing and supporting antennas and masts.

Some people will tell you that an antenna in the clear is better than one surrounded by foliage. This may be true, but either antenna is better than none at all! The use of a tree can provide height that is impossible by other means.

Low profile amateur radio

Be on air without your neighbours knowing

Though antennas are things of great beauty to radio enthusiasts, people who are not interested in radio often think otherwise. However antennas are necessary for all types of on-air amateur activity.

Many amateurs live in dwellings where, for various reasons, it is important to keep a low profile. This may mean running only moderate power to reduce interference risks, refraining from erecting tall masts stacked with beams, and finding inconspicuous ways to bring antenna feed lines inside. Too many amateurs when faced with these difficulties either go off the air entirely or transmit only from their vehicle.

However, most of the problems mentioned above can be resolved. It is possible to enjoy amateur radio without neighbours or landlords knowing. And, given the current high sunspot activity and good HF radio conditions, now is the ideal time to establish your own low-profile amateur radio station.

This month we provide pictorial examples of low-visibility outdoor HF antenna systems and suggest ways that they can be concealed.

Do fence me in

Though it may not be very apparent in the picture below, you are actually looking at a HF antenna that has been used on most HF bands between 15 and 160 metres.

The antenna consists of an end-fed wire 40 metres long as described in *Novice Notes* June 1998.

Most of the wire is threaded through the slats of a wooden fence approximately 1.6 metres tall. Thin enamelled copper wire was used. (It was so well hidden a black line has been drawn over it to show the location.)

The antenna's main advantage is its multiband capability. It is also unlikely to be noticed by neighbours, spouses or landlords.

Because of its low height, the antenna has poor low-angle radiation.

This makes the antenna quite effective for local operation (up to 1000 km) but poor for longer distances. Nevertheless, the author has worked Japan on 15 metres CW with two watts on this antenna, so DX is still possible if conditions are good.



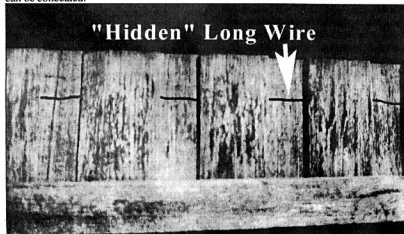
Wire antenna through trees

The end-fed wire antenna shown in the picture is about 12 metres long. (Again – the wire has been drawn in.) It extends to the top of the tree and is almost perfectly vertical. Because the tree is not tall enough to support the full length, the top part of the wire is bent toward itself forming an acute angle at the top of the tree. A small pea-sized lead sinker is attached to the free end to keep the antenna wire taut. Choose green or black covered insulated wire to reduce visibility.

Though this antenna is shorter than the fence-mounted wire described above, its height makes it more effective on bands above 7 MHz than the longer antenna.

Trees can also be used to conceal antennas other than end-fed wires. For example, a fixed-position two-element quad with wire elements for six or ten metres can provide an effective gain antenna that does not attract attention. Alternatively, a single-element quad loop fed with open wire feed lines can cover several bands if you have an antenna-coupling unit.

"Hidden" Long Wire



Wire antenna in fence (almost invisible)

The balcony scene brought to earth

Balcony rails can appear attractive as ground systems because of their sometimes-considerable length.

However, their use is fraught with dangers. The author's only attempt to use one was greeted by a barrage of carrier signals heard while tuning across eighty metres. These carriers were harmonics of local AM broadcast stations.

The harmonics originate not from the station transmitters themselves, but from bad connections in the riveted aluminium balcony rail. The metal oxide surfaces act like diodes causing harmonics to be generated.

Using such a rail as part of an earth system would be unwise - it would almost certainly generate TV interference (even though your transmitter is clean and you have a low pass filter) and blow the cover off your 'covert' transmitting activities.

If you do use a balcony rail (or other metal structure) as an earth, make sure connections are good before proceeding. If this is not possible, find an alternative earth for your antenna system.

The standard handbooks stress the importance of having a station earth with short and stout connections to the equipment. However, this is almost impossible to arrange for amateur shacks that are several storeys up. Alternatives include the use of the plumbing system (if there are copper pipes available) and radials a quarter wavelength long on the bands of interest.

Staking your claim to the earth

A typical earth stake consists of a copper jacketed steel earth rod, 12mm diameter and 1200mm long. Mine was only 600 mm long - an earlier attempt at driving a longer stake into the ground was not successful as it struck a rock and one did not wish to draw attention by continuing to hammer the stake any deeper. The stake must reach the damp underearth where a ground resistance of around an ohm is achievable.

Use a stainless steel clamp to attach the wire to the copper. Alternatively, if you have access to a large soldering iron or butane-powered torch, solder the connection instead. In some industrial installations the connections are brazed together or silver soldered.

Ideally one would use a thick conductor such as coaxial cable braid (leaving the outer jacket on) for the lead from the earth to the station. If appearances are a problem, other types of wire could be used.

In my installation, green and yellow insulated electrical earth wire was used to

make the earth system appear as part of the home electrical system.

The simple ground stake as described above will not be sufficient for good performance with some types of antennas. In such cases, connecting radials to the earth stake will dramatically improve performance. A small number of elevated radials is better than a larger number of buried radials. However, elevated radials are unsightly, and the experimenter may have to be satisfied with running a few radials along the surface of the ground.

A thin wire running along the ground can be almost invisible. This is especially the case if care is taken to choose the colour of the insulation to match the colour of the ground.

A single 10 metre long radial was run from the earth stake as an experiment on 40 metres. Improvements in the strength of the transmitted signal ranged from nothing to 3 to 4 s-points in some directions.

If the radial is run down the side of a building or laneway it can go unnoticed. Some types of coaxial cable look like plastic irrigation tubing, so it may be possible to run the radial beside a flowerbed without it attracting attention.

One major difficulty is getting the feed line in. Gaps under doors can be small, and windows (especially those fitted with flyscreens) do not always offer a solution.

Some people get around the problem by drilling small holes near the corners of doors or windows. These can be filled in if you move out.

Open wire feeder is usually easier to get inside than coaxial cable, particularly if you do not have metal-framed windows.

In my installation a homemade open wire feed line was passed through an open front window. Security is not compromised as the window can still be closed and locked with the feed line in place. The use of white wire (rather than black) would have improved the visual appeal of the installation.

Open wire feed line is less lossy than coaxial cable. It also allows multiband operation with simple dipole and loop-type antennas if you have an antenna coupling unit.

The attempt to do the same with coaxial cable would lead to quite high losses as a result of the extreme impedance mismatches that would occur.

Conclusion

The above comments, have, I hope, given several ideas for the amateur wishing to establish a low-profile amateur station. With recent improvements to propagation conditions, there will never be a better time to set up a station than right now!

Kick Started Radio Operator

Bob Harper VK4KNH
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Bobharper@bigpond.com

I WAS WORKING on an old valve BC radio today and received a tickle from one of the capacitors - the first one in a long time, and I got to thinking of some of the many occasions when this had happened in the past.

Most are not worth relating and I am sure that most of you have had similar experiences. But one story is worth at least one more airing. Especially as it didn't happen to me.

I made a friend, Peter, some time back. Peter is one of those guys that always has a story, due in part to his world wide travelling and in part to having been selected for a tour of Vietnam to use his technical skills.

At one time he was on a seismological survey vessel for an American company as one of their on-board techs and radio operators.

The story, as he told it, was that the main ship HF transmitter would occasionally go intermittent as a result of salt induced corrosion in the PA valve sockets.

The rig had a hinged cover panel that, when opened, would disconnect the three kilovolts from the finals for safety. The operators knew this and trusted it a little too much. They would open the door, wriggle the finals to make contact again and close the door. Operation usually returned to normal - for a time at least.

One time when this problem arose Peter, always his congenial self, volunteered to fix the problem so the duty operator didn't have to get up from his key position. Peter opened the door, grabbed the hot valve to wriggle it and it grabbed him.

Apparently the microswitch on the door failed to operate and Peter copped the 3kv up his left arm, across his chest and down his right arm to the offending door. Needless to say he went down fast and hit the floor hard.

Almost immediately a small crowd of ship's crew gathered around him but it was a small Chinese man, the ships cook, that administered the resuscitation by standing on Peters chest and kicking him with his heel.

Wherever the process was learned didn't matter for Peter was saved and lived to tell many other stories. But he always finishes this story with the comment that he believes that he is *the only Australian radio operator ever kick-started by a Chinese cook.*

I believe that he is still in Hong Kong but have lost contact with him. So if you hear a tall ginger haired guy nearing fifty, perhaps sporting a beard, telling this story somewhere, give him the address above and tell him to say g'day.

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AN EXPANDING WORLD

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All times are UTC

F2 indicators

With the emergence of increased F2 activity, the following stations are useful pointers to a rising MUF. Keep a copy by your transceiver.

- 35.574 Pager system believed to be from California
- 35.639 VOA harmonic believed to be from Hawaii
- 40.679 Local pager Australia wide FMn low power
- 40.695 Meteor Data Inc M/S burst system Alaska
- 40.749 Local pager Australia wide FMn low power
- 42.999 TEP Asia 43.649 Philippines M/S system 20 kW
- 43.579 Pager system believed to be from California
- 43.849 TEP Asia believed to be radio link system
- 47.749 3 Asian or Middle East video unknown source
- 48.000-49.000 Asian radio telephone repeater
- 48.239 EU Asian and Middle East video
- 48.249 EU Asian and Middle East video
- 48.259 EU Asian and Middle East video
- 49.500 49.900 Asian cordless telephones
- 49.639 Alaskan DARN radar
- 49.739 EU Asian and Middle East video
- 49.749 EU Asian and Middle East video
- 49.7499 Khabarovsk Video outlet 67 kW
- 49.759 EU Asian and Middle East video
- 50.100 Worldwide CW DX only calling frequency
- 50.110 Worldwide SSB/CW DX only calling frequency
- 50.125 American Primary local calling frequency
- 50.200 Australian Primary local calling frequency
- 55.2498 - Pago Pago Alava American Samoa 67.5 kW NTSC
- 55.250+/- US, Mexico, Canada and NZ CH 2 video

Details courtesy of **Neville VK2QF** and the two Steves **KL7FZ** and **VK3SIX**.

Beacons

Rex VK8RH reports: *Returned from a trip to Thursday Island on the top of Cape York. Mike VK8ZMA is working there for a few months and we set up a beacon on 52.200 (carrier frequency listen on 52.199 USB) with the ident of VK8ZMA/b. Power is 5 watts and vertical antenna. Would appreciate any reports.*

Six metres

February was busy with activities which point towards the appearance of long distance contacts via F2 being around the corner. There is so much to report, repeating day after day, that it is impossible to give a blow-by-blow description of events.

Almost every day during February, signals were heard between 35 and 50 MHz from Asia, in a general area north of Australia. Signals have been prominent into VK4, VK2 and VK3 in particular, and to ZL. Steve VK3SIX supplies the bulk of reports, supported by information from ZL and the JA 50 MHz Cluster.

Loggings usually commence from around 2300 and extend through to 0300, although there have been days when the reception of signals continues through to 0700. Then there may be a lull of an hour or two after which the evening reception commences, and signals are heard to 1200 and beyond.

Other out-of-band signals are found between 55 and 60 MHz and usually comprise sound channels of various TV stations, from New Zealand, American Samoa and other places.

Then there are the multitude of TEP contacts between VK, ZL and JA, in addition to these, the JAs have the advantage of being able to work a number of other countries situated around them, including HL, VR2, V73, KH6, 9M2, P29, W and XE. Noted also is that as of 3/3 KH4/IV3NVN (Midway) was still being worked, mainly by JAs.

VK to VK and VK to ZL contacts have been common, plus the continuing availability of vk beacon signals, with VK8RAS/b at Alice Springs featuring prominently. From the VK5 viewpoint VK4BRG/b and VK4RGG/b are heard on a regular basis. It surprises me the number of contacts between ZL and JA, they appear

almost as easy to achieve as between VK and JA. In addition, ZL has reached the US and Mexico.

V73AT seems to be in a prime spot judging by the stations worked, with JA and KH6 high on the list.

So it is all looking very good for some exciting happenings during April. Nev VK2QF says: The 27 day rotation will see activity around the 8 to 14 March and the classic equinoxial period 28 March until the 15 April.

Following are a sample of the signals heard or worked in VK or ZL:

- 42.500 Los Angeles police FM
- 43.650 Burst transmitter, Philippines
- 43.850 FM radio telephone link
- 45.2500 ZL TV 46.261 VK2 TV video
- 49.7499 UA0 TV video
- 50.062 KH6HME/b 50.110 KH7R
- 50.110 V73AT
- 50.110 WA5LIG/6
- 50.125 NK7J SSB heard
- 50.750 ZL2 TV FM
- 55.2396 ZL1 TV video

Stations heard working JAs: VKs 1VP, 2BA, 2BUE, 2DN, 2FC, 2FHN, 2QF, 2YO, 3AMK, 3SIX, 4ABP, 4ABW, 4APG, 4BIT, 4BLK, 4BRG, 4DB, 4DMI, 4DUG, 4GPS, 4JL, 4JH, 4KHQ, 4KJL, 4KK, 4LR, 4PU, 4VV, 4WTN, 4YPM, 5BC, 5GN and others. ZLs 2AGI, 2TPY and 3TIC.

JA - all districts worked except JA5. (Strange, no JA5s). Many JA8s at 8000+ km. JAs into some part of VK almost every day during February and continuing into March.

Other interesting contacts:

- 15/2: 0220 XE1/SM0KAK to LW5DX;
- XE2UZL/b, XE1KK and WA5LIG/6 into ZL 15/2: 0230 VK3SIX to JA8QX SSB via F2, distance 9000+ km.
- 15/2: 0335 JR2HCB to HL1 and HL5.
- 17/2: 0623 JA1RUJ to 9M2JKL 559.
- 20/2: 0130 7J1AEJ/7 worked VK0YQS/9 Lord Howe Is.
- 20/2: 0555 VK4KK to JO1SKU (3 watts) 5x9+.
- 20/2: 1137 V73AT to VR2XMT 5x7.
- 20/2: 2305 ZL3NW heard XE2UZL/b, 2313 worked N6XQ SSB.
- 21/1: 1142 JH0BQX to P29PL; 1251 JM1JGJ to P29KFS and P29PL.
- 21/1: 0144 XE1/SM0KAK to LU9MA 5x7.
- 27/2: 0046 XE1/SM0KAK to PY5CC 5x5, HC5X, also many LUs.

E-mail address change

Please note that my e-mail address is now changed to <vk5lp@ln.net.au>. This allows me to have local call access fees instead of STD charges.

02/3: VK2QF reports many US utilities between 35 and 42 MHz.

03/3: 0200 VK2QF to HL5XF. (HL5XF reported LW4BHN* and PP5HOT).

03/3: 0248 JR2HCB heard LW4HBN 5x5.
03/3: 0400 49.751 Russian TV, weak to VK3SIX.

08/3: 1506 4S7YSG to YC1EHR SSB.

08/3: 1535 VR2ZGK to 4S7YSG SSB.

08/3: 1600 9M2NK to VQ9DX CW heard.

08/3: 1717 4S7YSG to A61AH SSB.

08/3: 2130 P29KFS to BG7OH 5x9.

08/3: 2100 P29KFS heard V63CV 5x6.

* **Neville VK2QF** advises the HL5XF/LW4BHN contact as being near antipodean, "which augers well for VKZLS to see some good propagation when it stretches sideways a bit!"

Also of note is the appearance of 4S7YSG from Sri Lanka. I think the last time a station appeared from there was in 1982! ... VK5LP.

Thanks to Waiwai Ham Life, Japan 50 MHz Cluster, VK3SIX, VK2QF and ZL3TIC for various excerpts from their news information. Also to the VK-VHF Reflector and Pacific Rim DX Reflector.

Peter VK3KAI reports that he worked Doug VK0YQS/9 Lord Howe Island 50.120 MHz at 1205-1230 on 1/3. Ralph VK3WRE joined in the contact, only running a vertical. Doug was peaking S9+20. *I could hear Doug (weak) working VK3XLD and VK3BRZ as the propagation shifted after 1230. Doug is expecting a VK9 call to be issued soon, and will be on LHI for two years.*

Ron VK4BRG reports that on 3/3 he worked at 0159 NH6YK Hawaii, 0240 KH4IV3NVN Midway, who was working JAs at the time. 0507 V73AT. General JA openings most days.

From **Wally VK4DO** via **VK4ZZ**: On 6/3 between 0150-0230 XE2UJZL beacon was heard by Wally VK4DO QG49 and Ron VK4BRG QG48 at S1-2 with medium QSB. Other signals identified at the same time were VK4KK and VK4ABW on backscatter. The beacon appeared again very weak on 7/3 from 0500-0510.

A hint of things to come ...

Information from **VK8MS** states that he worked a station signing A61AH on 7/3 at 1120. Believed located at Dubai in the United Arab Emirates in the Persian Gulf region. Name Almur and running an IC706 into dipole antenna. A second QSO at 1145 was better at 5x9 on 50.145.

Also, intelligence gathered shows we finally have the frequency of the Trade Centre high power CH3 outlet - it is 55.3205

MHz. Also strong into Darwin on 7/3 the South Asian offset on 48.2396 plus other strong signals. ... Steve VK3SIX.

Geminids Meteors

Adrian VK2FZ/4 in Grid QG63kf sent details of his activities during the Geminids meteor showers on 12-13 December 1998. Although now somewhat dated it is still relevant information for future research purposes.

Adrian monitored the Geelong beacon VK3RGL on 144.530 MHz in QF22. The beacon runs 8 watts to a 7 (?) element yagi and is 1494 km distant. All dates and times UTC with any local dates and times in brackets.

My 1997 log reads - Geminids best 12/1297 1500-1900 (13/12 0100-0500 EAST). Peak 1600-1700 but longer burns later 1830-1900.

For 1998 I began monitoring VK3RGL on 9/12 and noted quite a few 5 second bursts around 1830 (10/12 0430). I planned to be on over the weekend 11-12/12 between 1700-1900 (12-13/12 0300-0500) calling on 144.200 MHz SSB whenever a good burst occurred. I was on both mornings but longer bursts were few. I heard Ron VK3AFW work Glen VK4TZL between 1830-1900 with a couple of reasonable 5 second bursts around 1830-1835. I worked no one.

I was disappointed thinking that Sunday morning local was the peak. I did not plan to rise on 13/12 (Monday morning local) but was awakened by loud long (10 second) bursts around 1630 (0230). There were many good 5-10 second bursts between 1630-1700.

14/12 (Tuesday local) again awakened by loud bursts at 1630. Clocks VK3RGL/b from 1700 (0300) onwards. I called with no reply on each of the bursts listed. Many shorter bursts of about one second and pings not logged. 1724 (05/3) means at 1724 there was a 5 second burst of maximum signal strength S3.

1701(05/2), 1710(05/2), 1713(03/3), 1714(03/3), 1716(03/8), 1718(03/3), 1723(10/9), 1723(05/5), 1724(05/3), 1725(01/8), 1729(10/9), 1730 (10/3), 1733(03/3), 1735(10/3), 1736(15/9), 1736(10/7), 1737(05/3), 1737(05/9), 1738(05/3), 1738(10/9), 1744(01/3), 1747(03/3), 1750 (03/8), 1752(10/9), 175305(3), 1755(05/3), 1804(05/3), 1810(05/9), 1813(02/3), 1820(05/8), virtually nil until 1843 (05/5) Mount Gambier, 1930(07/7) Geelong, 1932(10/7) Geelong. All called with no result.

15/12/98: Wednesday morning local, bad QRN with thunderstorms - no serious clocking.

It is my view that the Geminids 1998 for

this Melbourne - Brisbane path peaked 13-14/12 between 1600 and 1800 (14-15/12 0200-0400 EAST). It is not surprising that no one is operating at these times! My thanks to the Geelong VHF Group for maintenance of a truly superb meteor scatter beacon.

I think the November Field Day is a great idea, and if it is scheduled as close as possible to the Leonids meteors, 16-17-18/19/11 even better, but please make the exchange required as short as possible - trying to swap a five digit serial number and a grid square is too much. How about a three digit number consisting of a signal report (RS) and a single digit (0-9) QSO number - start with 590 say and after 599 is reached revert to 590 again. Grid squares can be worked out later and need not be part of the exchange. Your thoughts please.

Grid Square Standings at 22/12/1998
by Guy VK2KU

144 MHz

VK2ZAB Gordon 56
VK3CY Des 45 (+3 EME)
VK2KU Guy 42
VK3CAT Tony 23
VK3BJM Barry 17
VK6KZ Wally 17
VK6KZ/p Wally 16
VK2TZ Dale 14

432 MHz

VK2ZAB Gordon 30
VK3CY Des 23
VK2KU Guy 11
VK6KZ Wally 10
VK3BJM Barry 8
VK6KZ/p Wally 8
VK2TZ Dale 3

1296 MHz

VK2ZAB Gordon 8
VK6KZ/p Wally 5
VK6KZ Wally 4
VK2KU Guy 3
VK2TZ Dale 1

Additional rule inadvertently omitted: Contacts made via active satellite or repeater, do not count. Cross-band contacts should not be counted either.

Updates, and requests for the guidelines to Guy VK2KU, guypmcp.mq.edu.au, or by mail (QTHR 99).

Two metres and above

Rick VK6XLR Geraldton made contact with Bill VK6AS Esperance at 2356 1/3 on 144.120 MHz 5x5 both ways and up to 5x7. Distance 900 km over land.

Ron VK3AFW report: The poor tropo weather has made DX very rare on two metres and above and no Es opening to VK4 has occurred this year, so that's probably one reason why there's not a lot of reports about.

I continue to work Andrew VK7XR on

144.080 MHz in the mornings on CW, although now I am restricted to 30 watts we don't make it two-ways all the time. I also work Ian VK1BG via aircraft enhancement most Sunday mornings on 144.250 MHz. On 20/2 I managed a QSO on 144.200 MHz with Chris VK1DO, using CW from here.

Des VK3CY at Wedderburn, is progressing with a 4 bay EME array. On 28/2 he worked WSUN on 144.028 MHz using one yagi only.

Russell VK3ZQB writes: *Conditions have been very poor. The only glimmer of hope was a brief 5x5 opening to VK6AS on 11/2 at 1327. Just prior to that contact Col VK5DK worked VK6KDC 5x5. I could not hear VK6KDC.*

On 12/2 I worked Bill VK6AS again with 5x9 signals. Nothing further west was heard and the opening may have been associated with a front that was moving through.

On the 22/2 there was a super refractive duct existing between Mount Gambier and Port Fairy. Col VK5DK heard me on 144 and 1296 at 5x9+. I turned my 1296 antenna toward Melbourne to see what Allan VK3XPD's beacon was like, and Col could hear me 5x9 on 1296 off the back of my yagi. I had a contact with Allan on 1296 5x5 but the duct was not as good as toward the west.

Col set up his 10 GHz gear outside his shack door and I did the same. We did not expect to make a contact as both stations were looking into trees and houses. Surprisingly, Col heard my signal at 5x3 when pointing toward me and 5x5 when he pointed south and received a reflection from the Mount, an indication of the strength of the duct.

Wally VK6KZ reports: *During the National VHF/UHF Field Day on 9/1, Terry Grammer VK6TRG operated portable on all bands to 5760 MHz. Alan Woods VK6WZP worked from 50 to 5760 MHz except for 3456 MHz. Bruce Douglas VK6BMD/p 50 to 2403 MHz. Al Edgar VK6ZAY from 50 to 1296 MHz from home and then went portable on 10 GHz and Wally Howse VK6KZ/p worked on all bands from 50 to 10368 MHz. Four locators were activated by the latter.*

At 2157 on 15/1 phones ran hot with Daryl Church VK6KDC in Manjimup alerting Bob Blinco VK6KRC in Perth who then rang Don Graham VK6GKH who rang Wally Howse VK6KZ who rang ... and so on. All this was for an opening to Mount Gambier on 144, 432 and 1296 MHz. Worked from Perth on 144 and 432 were Col Hutchesson VK5DK and Trevor Niven VK5NC in Mount Gambier. John Drew VK5DJ, Phil Helbig VK5AKK and Roger Bowman VK5NY were worked on 144 MHz. 1296 MHz was a little frustrating with Cec Andrews VK6AO being heard by Col VK5DK, and VK5NC being heard by Cec and by VK6KZ but no two-way

contacts made.

VK3VSW in Colac was heard by VK6KZ via the VK6RMS repeater and then direct on 146.325 MHz at 4x1 but no contact was made. Lee VK6AL in Perth did work VK3VSW.

Next morning at 2250 VK6KZ worked Max Pickering VK3TMP and VK5DK on 144 MHz. Others in Perth alerted by phone had no success.

From 18-21/1, Wally VK6KZ operated portable from Torbay. For the first time in 20 years his prognosis of good conditions failed and no signals were heard from the east across the Bight despite a promising high in the Bight. Upper level disturbances were blamed for the poor conditions. The only plus from the trip was working Don VK6HK on 144 MHz from three locators new to Don including the rare OF94. Certainly the long east-west path has been most frustrating this year.

Bill Hockley VK6AS reappeared on 144 MHz with his new 8 bays of 10 metre boom long yagis on 142 and daily contacts continue.

A welcome addition to the early morning skeds on 144 MHz SSB is Rick Kowalewski VK6XLR who has moved from Exmouth to Geraldton. On 28/2 Rick was 5x9+ on 144 and 5x7 on 50 MHz (tropo) in Perth when he worked VK6KZ at 0945. The following (WA) morning at 2200 a number of contacts were made among David Lloyd VK6AOM at Buntine, Bill VK6AS in Esperance, Wally VK6WG in Albany, Rick VK6XLR in Geraldton, Wally VK6KZ, Glen Huffner VK6IQ, Cec VK6AO and Don VK6HK.

On 1/3 at 2350 Rick VK6XLR worked Bill VK6AS over a 888 km land path on 144 MHz. The next morning at about the same time Wally VK6WG worked Rick VK6XLR over a land path again, of 757 km.

Al VK6ZAY has had his first contact on 24 GHz SSB with Wally VK6KZ over a 1000 wavelength path with time preventing a longer distance trial. Al designed his own circuitry constructs of all the necessary PCBs with stick-on copper tape on to the teflon board. His design is ingenious with a double conversion system on transmit and receive.

Starting with an IC202 on 144 MHz he generates SSB at about 3 GHz and then this 3.3 GHz SSB is then mixed again with a further multiple of the oscillator chain at about 21 GHz to produce the 24 GHz signal. A MGFI302 is used as an active mixer and provided the output for the tests (1000 wavelengths = approx 10 metres). A separate MGFI302 mixer is used on receive. An SMA relay is used to switch the antenna. The actual feed is a shepherd's crook-shaped-waveguide (made from a corrugated wall tube - formerly a water pipe!) with an open end into a 600 mm dish.

Provision has been made for amplifiers for both transmit and receive.

Alan VK3XPD says that there has been nothing heard from the west since early January when (among other things) he had his first 23 cm contact to Wally Green VK6WG. The present weather pattern continuing, gives little prospect for any improvement for now.

It seems strange that ...

Adrian VK2FZ/4 from Maleny asks that amateurs be alerted to a set of circumstances which have occurred near his location, about which he has written to the Queensland Technical Advisory Council.

It seems that a few months ago Adrian began receiving severe interference on the International EME Frequency Segment of the 432 MHz band, 432.000-432.100 MHz, in fact, the interference continues at least to 434.000 MHz.

Seemingly the interference emanates from an ATV repeater; output frequency 426.250 MHz (video) and 431.750 MHz (sound). At present it has output 24 hours a day and has ruined all Adrian's operation on 432 MHz.

His concerns are:

1. Why is a repeater transmitting continually? One would expect it to transmit when triggered and have time-out control.

2. The Band Plan recommends that 426 MHz be the repeater input, not output as is now the case.

3. He finds the operation of the repeater particularly objectionable as it is a case of amateurs interfering with amateurs on a continuing basis and not in accordance with the spirit of the Amateur Code.

This is in these notes as a warning to others who may find themselves being led into a similar situation. But I query why 426 MHz is being used as the output frequency.

Closure

By the time you read these columns, you will be noting whether this equinox is living up to the various projections that it should produce six metre F2 contacts over long distances, or whether frustrations will set in with reception of signals in the 35 to 45 MHz area and not far beyond.

Those working the higher bands will have observed any enhanced conditions on the east-west path, which has been poor this year. It seems good conditions were confined to the east coast, with particular emphasis on the range of conditions presented to Gordon VK2ZAB in his palace at Berowra Heights.

Closing with two thoughts for the month:

1. People who give up smoking usually substitute something for it - like bragging.

2. The best safety device in a car is a rear-visibility mirror with a policeman in it.

73 from The Voice by the Lake.

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AMSAT AUSTRALIA

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National co-ordinator:

Graham Ratcliff VK5AGR
Email: vk5agr@amsat.org

AMSAT Australia net:

The AMSAT-Australia net is held on 80 or 40 meters LSB each Sunday evening. During daylight saving time in South Australia the net is on 7068 kHz +/- QRM with an official start time of 0900UTC (with early check-ins at 0845UTC), during the rest of the year the net is on 3685 kHz +/- QRM with an official start time 1000UTC (with early check-ins at 0945UTC).

AMSAT Australia newsletter and software service:

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIRMAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Keplerian Elements.

Current keps are available from the Internet by accessing the AMSAT FTP site, ftp.amsat.org and following the sub-directories to "KEPS".

Status of the new batch of Amateur Radio Satellites

There has been somewhat of a flurry of activity in satellite launches recently. Unfortunately they have not all met with complete success.

Here is a summary of the situation at the time of writing.

PanSat PO-34 (USA).

This satellite is still in commissioning and it is expected to be another couple of months before it will be opened for general use.

It was developed by the Naval Postgraduate School and its spread-spectrum digital transponders will be available to amateur radio operators in the near future along with software to utilise this technology. Its command station is in Monterey, California.

SunSat SO-35 (South Africa)

This new satellite is scheduled for release for general use about the time you will read this. SunSat was launched February 23, 1999.

continues next page

Out of this world use for Velcro

It was reported by ARRL recently that the first set of amateur radio equipment to be "installed" on the International Space Station would be held in place with, of all things, Velcro.

Industrial strength Velcro has long been used for keeping tools and small pieces of equipment in place in the zero gravity environment of MIR and the Space Shuttle. It is planned to eventually install the amateur radio gear in a large rack in the crew's recreation module.

TMSAT-1 TO-31 (Thailand and University of Surrey)

This satellite is working very well. The downlink signal on 436.925 MHz 9600 baud FSK is proving to be very popular among the digital imagery fraternity.

TO-31's earth pointing cameras have been capturing some spectacular pictures. The raw images rival the NOAAs for clarity. The resolution is such that each full image is almost a megabyte long and can take some time to download.

Thumbnail images accompany the main image files so the quality of the main image can be assessed before downloading.

The uplink on 145.925 MHz is switched off at present.

Eventually it is hoped to switch on the alternative 38k4 baud downlink to allow much faster downloading of large image files. A new version of ProcMail (V2.00G) has been released by G7UPN. This software permits the processing of the very large image files from TO-31.

TechSat-1B GO-32 (Israel).

Downlink 435.325 MHz.

Its HDLC telemetry is framed so a TNC in KISS mode can be used for decoding.

The TechSat-1B micro-satellite was successfully launched from the Russian Baikonur Cosmodrome on July 10, 1998. It does not have a continuous beacon.

It transmits a 3-second, 9600-baud burst every 30 seconds. The satellite is still undergoing commissioning.

KO-23 Situation

I was a bit premature a few months ago with my hope that KO-23 would give us good operating conditions over the holiday period. Murphy struck with a partial battery failure. The satellite had still not been returned to service at the time of writing. Monitoring over the past week or two has revealed that KO-23 is sometimes transmitting an unmodulated carrier. The signal strength is below normal but strong enough to detect data if it was present. KO-23's shut down has meant that KO-25 and to some extent UO-22 have carried more than the usual amount of digital traffic over the last few months.

The last data from KO-23 received at this station was on January 17 1999.

SSTV on MIR

I've never been involved in the SSTV scene so I do not have any decoders for the signal being broadcast from MIR on weekends. I have listened however and the signal is strong and appears to be well modulated with no discernible noise.

Good signals like that should mean good pictures. I have viewed the pictures on the Internet and also those uploaded to the digital birds and they are mostly very good quality. I wonder is anyone in VK actively downloading the pictures. They are in Robot 36 format and I'm told that the JVfax SSTV package will not handle them.

SedSat-1 SO-33.

Downlink 437.910 MHz FM 9600 Baud FSK.

This satellite suffered problems with the command and receivers right from the start. It is not currently available for uplink transmissions and recovery efforts have not been successful.

SedSat-1, signifying Students for the Exploration and Development of Space Satellite number one, was successfully launched and placed in orbit on October 24 1998.

SedSat-1 was also designed as an imaging satellite but much of the equipment has not been activated due to telecommand problems.

SPOTLIGHT on SWLING

by Robin L. Harwood VK7RH

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Well, Time is really flying so quickly with a quarter of the second last year of the 20th Century already gone.

So far, we have seen the demise of Morse code together with the closure of some HF maritime communications stations throughout the World.

The BBC World Service has announced that they have closed some language sections, as they are no longer viable.

One of these was German, which first started in 1938 just prior to the Second World War. After 61 years, it was decided not to broadcast either in German or Czech any longer.

Other language services were cut back including Russian. I also believe some Asian languages were either axed or reduced. These changes took effect on the 28th of March.

The BBC World Service also decided to introduce two streams of English programming, with a news and current affairs stream over short wave and other programming being fed either through local FM affiliates or via the Internet in Audio formats.

I believe as well that the BBC is going to try and have the World Service available on FM in major capital cities and regions throughout the Globe via local affiliates. Of course, programming will be increasingly commercially oriented and global.

I personally think that the BBC World Service has gone downhill. It no longer has the character or authority it previously had when it was the Voice of the United Kingdom.

Radio Australia recently increased the hours of its Indonesian service. Matt Francis in Canberra informed me that Radio Australia as from Monday March 8th introduced an afternoon service, with a new half-hour broadcast at 0800-0830 (1500 local time in Indonesia) on 17,750 and 15,415.

It will provide news updates and information additional to the existing 2130-0000 morning broadcast (on 11,695 and 15,415). All broadcasts are from the 100 kW transmitters in Shepparton, Victoria.

The additional service will be available on Radio Australia's Indonesian Language web site that includes news bulletins in text and audio as well as information programs.

RA says its strategy of rebroadcasting some programs via local FM stations in cities is proving successful.

Of course, there has been recent turmoil within Indonesia leading up to the presidential elections in June. Also the former Portuguese colony of East Timor may be leaving Indonesia. With recent clashes on Ambon and at Aceh, the need for updated Indonesian news bulletins is paramount.

Matthew also informed me through the Electronic DX Post (EDXP #116) that American religious broadcaster KTRW which is located on Guam will introduce a new service in Tok Pisin ('Pidgin') for Papua. This is the lingua franca of Papua-Nuigini and some nearby Pacific Island nations.

It commenced from the 29th March and will only be weekdays from 0930-1000

UTC on 15330 kHz. This will make KTRW only the second international broadcaster to use this language (in addition to Radio Australia).

Incidentally Radio Budapest is no longer using 25,700 kHz to Australia. This leaves the 11 metre broadcasting allocation surprisingly without any regular stations. Hungary is now using 21560 and 21745 to Australia, in Hungarian at 1000-1100 UTC (1100-1200 Sundays). I well remember hearing a powerful BBC signal on 25650 kHz in the early seventies. I think they were aiming for Africa.

The only other consistent signal was the French yet they too have dropped using it. I think they were using it primarily as a feeder to Francophone nations in Africa as well as broadcasting to remote French islands in the Atlantic and Indian Oceans.

Surprisingly there are some broadcast signals on both 25 and 26 MHz. These are on narrow band FM and are feeders for American radio and television stations.

These are for the benefit of remote OB's such as aerial traffic reports or live news feeds or broadcasts. They are low powered and over 40 stations are currently active.

One I have heard often is in Florida on 25950 kHz with a sports format. They are best observed here around 2230 hours which is in our local morning and when it is Sunset there in Florida. These feeders are licensed by the FCC and are classed as utility stations.

Iceland is another difficult catch. They have short broadcasts primarily for fishermen in the Atlantic Ocean. They use SSB.

The latest sked I have is on 13685 and 15575 kHz and from 1855-1930 on 5055 7735 9725 kHz, 1410-1440 & 1935-2010 on 11402 and 13860 kHz or from 2300-2335 on 9275 and 11402 kHz.

The choice of frequencies well out of the normal broadcasting allocations makes it easier to hear Iceland.

Well that is all for April. Until next time the best of 73,

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AMSAT continued

SunSat stands for Stellenbosch University Satellite and takes its name from the South African University whose students constructed the payload.

The SunSat package includes 1200 and 9600 baud digital store-and-forward capability and a voice 'parrot' repeater system that will be used primarily for educational demonstrations.

The satellite has two VHF and two UHF transmit-receive systems. As I write this column news broadcasts indicate that the commissioning of this new bird is going very well.

Close-but-no-cigar

APRSat nearly made it to launch but was scuttled at the last minute by a paper work hitch.

It was to go into a geo-stationary transfer orbit along with a test mass on a new launch system.

Its orbit would have been highly elliptical around the equator, much like the ill-fated Arsenne satellite of some years ago but with a much lower perigee.

It may still get into orbit if a suitable launch can be organised.

On the Horizon

VOXSAT-1 will not be a free flying satellite like most of the OSCARs.

It will reside as an instrument package within a large Russian satellite in the manner of AO-21 and many of the RS series.

It will have a cross band FM repeater and other goodies aimed at the modest amateur station.

It is scheduled for launch "sometime in 1999" so stay tuned for more information as it comes to hand.

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Divisional News

Forward Bias

VK1 Notes

Peter Kloppenburg VK1CPK

This issue of AR contains a combination of March and April commentary for the Canberra members.

A room full of trash and treasures for the radio amateur is a sight to behold. So it was on the twenty-fifth of January when the VK1 Division held its first of the regular T&T sales of the year.

As was to be expected, there were many amateurs with interesting gear for sale. I saw boxes full of resistors, big and small. There were all types of capacitors, fixed and variable, transistors, and ultra miniature valves of the microwave type, many types of multiple connectors and coaxial cables, including Helix.

Then there were the transceivers for VHF and UHF and even a splendid looking HF Collins KWM-2A with Power supply.

Committee members were well represented. They answered questions, and had yarns with hams and buyers alike. The QSL manager handed out cards, and the membership officer was busy signing up new members of the Division. Speaking of QSL cards, the management of the VK1 Division QSL bureau has now been split into two. Mike VK1MJ now handles only outgoing QSLs and Tex VK1TX handles the incoming.

Mike says that in the near future - before the February general meeting - a large shipment of QSLs will be sent away. Mike has also decided to relinquish his position as Federal Councillor. He wants to concentrate more on the technical aspects of amateur radio, rather than the administrative ones. The new Federal Councillor is Glenn Dunstan VK1XX. We wish Glenn good luck and thank him for his preparedness to take up the position.

Gilbert Hughes reports that work at the site of Mt Ginini is progressing well. After the framework for the antenna mast foundation was prepared, concrete was poured. Mounting bolts for the antenna base are in situ and as soon as the concrete has set, the first 6 metres of mast will be mounted on the base. In the meantime, work

has started assembling the antennas, stays, and other bits and pieces.

From the US comes word that the Federal Communications Commission (FCC) has issued an Experimental Radio Service licence to the ARRL to permit two-way tests in the vicinity of 5 MHz, the most likely site of the next amateur HF band. The licence, bearing the callign WA2XSY, was issued January 8. A group of 15 current amateurs in various parts of the US and the Caribbean will conduct experimental, two-way RTTY and SSB transmissions within the band 5.100 to 5.450 MHz. To avoid interfering with existing services, the participants will confine their operations to the least-populated 50-kHz segment. The licence is good for two years, and allows up to 200 Watts ERP.

The Annual General Meeting was held on February 22nd 1999 at the Griffin Civic Centre. After the various reports for 1998 had been delivered, the 1998 committee stood down. The returning Officer, John Woolner, then took the chair and proceeded with the election of office bearers for 1999. The following officers were elected: Gilbert Hughes VK1GH - President; John Woolner VK1ET - Secretary; Leslie Davey VK1LD - Treasurer; Simon Trotter VK1AUS - WICEN liaison; Peter Kloppenburg VK1CPK - 'Forward Bias' writer. Other committee members elected were Philip Longworth VK1ZPL - technical support; Tex Ihasz VK1TX - joint QSL manager. The support group includes: Hugh Blemings VK1YYZ - Membership Officer; Mike Jenkins VK1MJ - joint QSL manager; Glenn Dunstan VK1XX - Federal Councillor.

FLASH:

A new 6 metre FM repeater has been activated in Goulburn. Its callign is VK2RGN. The repeater's receive frequency is 52.7 MHz and its transmit frequency is 53.7 MHz. My guess is that the repeater should be operable from the Canberra region, although I have not been able to activate it myself from Kambah. The new divisional committee is concerning itself at present with coming to grips with actions, issues, and decisions that were

made and started by previous committees. Progress is being made about the state of affairs of the theory and Morse classes, assets that were acquired over the last two years, and locating and putting into operation the 40 ft mobile mast for VHF use for WICEN and other remote operations. Other enquiries are on going in regard to the division's commitments made by it in the past. The mailout that was started on the first of March already has had some limited success. Five new members have signed up and the Federal Office of the WIA is currently processing their applications. Our new Federal Councillor, Glenn Dunstan, will be attending the Federal Conference on 1-2 May 1999. The VK1 Division organises two meetings every month. The divisional committee meets on the second Monday of the month at one of the member's homes. The general meetings are held on the fourth Monday of the month. The next general meeting will be on the 26th of April in room 1, Griffin Civic Centre, Canberra City.

Flash-flash:

Committee member Simon Trotter VK1AUS has got himself a job in Queensland. He resigned at the last committee meeting. Philip Longworth VK1ZPL has taken over his position as WICEN liaison and coordinator.

pkloppen@dynamite.com.au

VK2 NOTES

Eric Fossey VK2EFY

The main activity over the past few weeks has been preparation for the Annual General Meeting at Amateur Radio House on Saturday 17 April 1999.

A fair amount of work and co-ordination is involved. A full financial and stock audit has to be conducted together with auditors reports, plus the collation and printing of the Annual Report and the necessary voting documents for the Election of Councillors and Motions on Notice. All this activity has to be co-ordinated to ensure that everything is in readiness for posting to members in accordance with our Articles of Association (Constitution).

By the time you read this you will have received all the necessary documents and, hopefully, will have voted where necessary.

One important reminder! If you cannot attend the AGM personally - please ensure that you have given your Proxy to someone who will attend and **make sure that your Proxy is directed as to how you wish to vote by recording your YES/NO on the back of the form.**

If you wish your proxy to use his/her

judgement on your behalf you may leave the reverse of the form blank.

The New Member Prize will be drawn and, if the winner is in the audience, will be presented at the Annual General Meeting. So, all you new members, come along and take part in the Annual General Meeting of YOUR organisation. Meet the Council for a chat over a cup of coffee or a cool drink. These are the people who will be working for you during the next year and it is important that you should be aware of their views etc just as much as they should be aware of yours.

The NSW VHF-DX Group, in association with the Blue Mountains ARC will hold a new FM Contest on Sunday 18 April 1999 (the day after the AGM) between the hours of 1200 - 1600 hrs EST (0200 - 0600Z) on VHF and UHF Simplex.

Briefly the rules are as follows - but for full information interested members should log-on to either the Blue Mountains ARC Web page (www.mis.net.au/leatheam/bmarc/) direct or via the link provided, for your convenience, on the WIA VK2 Web Page.

The contest is limited to FM telephony mode in the following frequencies: -

146.000-148.000MHz: 433.000 - 435.000MHz & 438.000 - 440.000MHz.

Recognised simplex channels must be used for all contacts.

National voice calling frequencies may be used for contest exchanges, but no station may participate in more than 2 consecutive contest exchanges on a single channel, except after a delay of at least 1 minute to allow other stations to use the channel.

Entry is in one of 2 sections:

Section 1 - Novice or Novice Limited (All members of this group must hold Novice Licence)

Section 2 - All other operators.

Power is limited to 50 watts, or the normal maximum output of the equipment in use if greater than 50 watts. Separate power amplifiers with a rated output greater than 50 watts may not be used.

Scoring is 1 point for each contact with multipliers of - 2 if distance exceeds 50kms, 3 if exceeding 100kms, 4 if exceeding 150kms and 5 if exceeding 200 kms. The contest is divided into 2 parts 0200 - 0400Z and 0400 - 0600Z - contestants may work stations on both 2m & 70cm once in each two-hour period for scoring points.

Interested operators (VK2 stations operating within NSW only) are urged to read the full rules on the Internet, or the copy of sent by the office to all Affiliated Clubs.

Bye for now,

Eric Fossey VK2EFY
Division Secretary.

VK3 Notes -

By Jim Linton VK3PC

WIA Victoria AGM

A formal notice of the annual general meeting to be held on Wednesday, May 26th will be sent to members. The notice will also include annual reports.

The venue will be the same as previous years - the St Michael's hall, corner of Victory Boulevard and High Street, Ashburton.

Come along and meet with the WIA Victoria councillors and your fellow members, and after the formal corporate business of the night is conducted, and presentations made, enjoy the social gathering afterwards.

ACA gets tough

Spectrum anarchy has reared its head again - this time with persistent illegal activity on the HF channels used by Royal Flying Doctor Service (RFDS) and Australian National Four Wheel Drive Radio Network.

The ACA has advised WIA Victoria that it believes converted amateur radio transceivers are being used on these frequencies.

Sources say that among the first offenders in a crack down will be a number of radio amateurs who have been identified initially by their voice and operating styles.

They are receiving either a knock on the door by a radio inspector who has the power to seize equipment, or a Regulatory Infringement Warning in the mail.

WIA Victoria Education

A new "EDUCATION ON-LINE" section has been added to the WIA Victoria web site. It has been initiated in response to difficulties being faced by prospective radio amateurs studying to sit the regulations exam.

WIA Victoria believes that the syllabus information available so far for candidates and class instructors has not been particularly user friendly.

The regulations have also changed enormously in recent years resulting in a complete revision of examination papers.

The new WIA Victoria EDUCATION ON-LINE presents some essential information in an easy to use format, plus a trial regulations exam.

Events in Victoria

The Midland Amateur Radio Club 1999 Convention will be on Sunday, 11 April at the Eaglehawk Town Hall. Doors open to the public at 10am. For more information contact Doug Fairbairn VK3DJY 03 5442 4450 or Alan Williams VK3TTY 03 5443 4750.

The Moorabbin and District Amateur Radio Club Hamfest is Saturday, May 8 at the Brentwood Secondary College, Glen

Waverley. The club is also celebrating the 50th anniversary this year of its formation.

And in Spring the Shepparton and District Amateur Radio Club Hamfest is Sunday September 12 at the Shepparton Youth Club Hall behind the High Street Safeway complex

VK4 Notes

Qnews

Alistair Elrick VK4FTL

WIAQ President

Col Gladstone VK4ACG reports on the WIAQ - ACA Liaison meeting held recently in Brisbane. The first item of note is that the ACA phone numbers in the Brisbane office will change from the start of business on the 22 March the main switchboard number will be PH 3247 7111 - FAX 3247 7100.

Items on the agenda included, pirated 40-metre calls, ABA TV Channel 35 "droptrough", advertising on Amateur Radio and delayed renewal notices.

There have been some complaints from members that they had not received their licence renewals until a few days before they were due.

This has been caused by the delay in signing the changes in fee structure where the changes for the New Year are normally announced on the 1st December each year. The latest date for implementation of the new structure is the 22 March. Late in April there will be a change in the way you can pay your licence, when there will be a locked bag system where you will be able to pay at a bank. Later in the year it is proposed that it will be possible to pay with the B-pay system.

There were reports of some Amateurs receiving a large number of QSL cards for contacts they have not made. Obviously someone else has been using his or her callsign. If you have had a similar problem let us know so that we can take it up with the ACA. They also had complaints that some people have been using Flying Doctor and other land mobile frequencies and are anxious to catch the pirates.

Advertising on Amateur Radio has at last received a decision on its legality and the ACA has given it the thumbs down, this applies to all forms of transmission including Packet.

Ron VK4BRG has been making investigations re DGPS in Australia.

The Australian Maritime Safety Authority (AMSA) has a series of web pages describing their system in the 285 to 325 kHz band.

Essentially, this system seems compatible with the US Coast Guard system that is

better known, and easily found, on the WWW. The big advantage of this system, which will no doubt appeal, is that it is free to users. Also, its 10-metre accuracy plus its early "warnings" of outages.

The complete Barrier Reef is covered by 4 stations with more projected. Also covered, by a single station each, are the areas around Sydney, Melbourne and Karratha (WA). A map showing the coverage is on their web page, but as to be expected, due to the 300 kHz frequency used, is not very extensive.

Jim Rixby, bix@san.r.com describes a DGPS receiver he built. VK4BRG is, more or less, following Jim's design. The receiver, outputs data in SC104 data format that is fed to a "differential ready" GPS (which, I think, most modern GPS's are).

Ron, VK4BRG.

We thank Ken VK4KD Editor of the Gold Coasts newsletter for advising QNEWS of SUNFEST the Ham Radio Day put on each 2 years by the SUNSHINE COAST CLUB. Nambour Showgrounds venue again, but a little earlier this year, August 28.

For all those travelling to the area later in the year, this is reported from the Far North about the FNNQARGG! A reminder that this year's Far North and North Queensland Amateur Radio Get Together will be held at Beachcomber Coconut Village, South Mission Beach, from Friday afternoon 11th to Monday 14th June 1999.

Also, the North Queensland Amateur Radio Convention. Planning has started on this year's convention. Stay tuned for further info!

Members of the Australian Ladies Amateur Radio Association are looking forward to the ALARAMEET held, this time around, in Brisbane. Bev VK4NBC has been keeping their members informed and says it's coming together quite nicely and it looks like they'll all have a very good time. This usually turns into an international ham meet of some note, already this year Flo KU7F looks like attending.

Why not "pop up" on the ALARA NET Monday nights, 3.580 MHz 1000UTC.

Bev, VK4NBC again is the coordinator for ALARAMEET 1999 in Brisbane this September and for further info Bev's phone number is 3359 0109, also on e-mail to vk4bgc@bigpond.com.

Qnews broadcasts can be listened to or copied from a number of sources. On the Internet in RealAudio and text, <http://www.wiaq.powerup.com.au> and the news in text is in 3 pages, Current week, Previous Month and Two months ago.

RF transmissions across the Country on

your favourite repeater, call in and check availability, eg Townsville and Perth have several news broadcasts. On MW 2300hrs Saturdays (9am Sunday Aest) 1.825. On HF 2300hrs Saturdays (9am Sunday Aest) 3.605, 7.118, 10.135, 14.341.9, 21.175, 28.400, all SSB and 29.66FM. A rebroadcast is conducted Mondays 7:30pm Aest 3.605 and the Deja vu edition, that is news originally aired 1 week previously is retransmitted Sunday evenings at 1/4 to 7 on 3605 and Brisbane's 147.000 MHz repeater.

Societies and Club newsletter Editors can obtain an e-mail feed prior to the actual broadcast date, e-mail qnews@powerup.com.au

Cheers, Alistair VK4FTL

VK5 Notes

Ian Hunt VK5QX

VK5 Divisional President

IT'S APRIL AGAIN

The significance of this "headline" is twofold. It is the month when we normally hold the Divisional Annual General Meeting (AGM) and also, in accordance with the requirements of the constitution, marks the end of my two-year term as President of the VK5 Division.

I look back on this period with mixed feelings. I would like to have seen more general activity within the Division as well as a larger increase in membership.

Whilst some achievements may not be particularly of note, I do feel that your Council has demonstrated very clearly the principle of consultation and consensus where it comes to members having a say in the running of an organisation.

This principle applies as the basis of action in many areas of our community ranging from Federal Government down to small local clubs and societies and is a time proven method of operation sometimes being seen as "democracy" in action.

The AGM will be held at the Burley Griffin Building on Tuesday 27 April commencing at 7.30pm.

At this meeting it is necessary that we advise of arrangements for the forthcoming year. We will also be in a position to consider the contents of the amended version of the proposed new constitution and, if approved by the members, be able to proceed with motions to allow it to be adopted for future use.

It is thus very important that as many members as possible attend this most

important meeting.

With my "release" from the position of President I will be continuing on Council for another 12 months as "immediate Past President". This proviso of the constitution is intended to ensure some form of continuity. I will also be able to continue to take an interest in the wellbeing of our Division and provide some help to whoever is selected as the incoming President and members of Council.

For the last 2 years, indicated above, I have provided the monthly notes for "Amateur Radio" magazine.

I hope that these have been of interest to you and that I have been able to convey somewhat of the activities of the Division as well as provide an inkling of various ideas that apply to the running of such an organisation as ours.

I assume, as a result of the changes to be made, that this will be my last of this series of notes for the magazine.

Undoubtedly this will be a relief for the Editor who will not have to deal with the problem of running his blue pencil through much of the material provided in an effort to fit the more important parts into the space allowed. He has been very patient with me and, ~~hence~~, at times has allowed me some latitude in this respect. (Too much is always better to edit than too little, Ian! Ed)

BURLEY GRIFFIN BUILDING - MOVE OF HEADQUARTERS

As well as the end of the period of my Presidency we approach the finalisation of an era where the Divisional Headquarters was located at the heritage listed Burley Griffin Building.

Our legal people are currently finalising some suggested changes to the lease document and it should not be too long before we are installed in the new location at 47 Surrey Road, Keswick within the boundaries of Keswick Park.

I feel that a new era now begins and I look forward with an optimistic frame of mind to great advances in the running of our Division and the conditions under which the hobby of Amateur Radio operates.

The one thing I see as of paramount importance is that we must have a strong and effective representation of our hobby to the various authorities.

BUILDING BRIDGES

I am very happy to be able to say that our relations with the elected Council members of the City of West Torrens as well as with the various officers employed by the council are excellent.

From a situation of seeming confrontation existing when I became President we now find that the City Council, including the employed officers, seem eager to assist us

in whatever ways they can. Their cooperation has been making it easier to deal with the many routine but necessary items encountered in connection with our proposed move.

Much of this seems to have resulted from the amalgamation of two City Councils and the fact that some reorganisation had to occur. However, it is interesting to note that in quite a few instances we are still dealing with the same people who were involved with the previous City Council.

Several elected Council members, and particularly the newly elected Mayor, Dr Reece Jennings, have indicated their appreciation of the WIA as a responsible organisation and a good tenant and assured us of their continued support.

I trust that we can find more ways to show our value as a community minded organisation and in doing so justify the faith shown in us.

THE FUTURE

I hope that it will be seen that the VK5 Division is in good shape and in a position to continue its role as a representative body for the benefit of the members and for the hobby of Amateur Radio as a whole.

There is no doubt in my mind that it is very important that we continue to play an effective role particularly in Federal matters.

May I make a final comment regarding such things by quoting from a letter I recently sent to all WIA State Presidents, Federal Directors and Federal Councillors.

"..... I ask that you give some "considered" thought to the issues which face the WIA as a "National" body and also as the major representative group on behalf of Amateur Radio in Australia.

The issues are such that we need, more than ever, open and honest action designed to benefit the hobby as a whole and clear recognition that selfish individual and sectional interests must be subjugated to our main needs."

My best wishes to you all. 73 from Ian VK5QX.

QRM VK 7 Notes

Ron Churcher VK7RN

State President.

After all the hype of the Annual meetings of our three branches they all are settling down to what looks like a good year for the Tasmanian Division.

We now have our Divisional Annual Meetings on the 20th March - a report will have to wait until the May issue. This is being held at Burnie under the sponsorship of the Northwest branch. Voting forms have been distributed by our efficient Secretary Paul, VK7KPG, for the eight positions on the State Council. It has been very pleasing to see that there is so much interest this year with a very good list of excellent candidates. Looking down it, it's a pity we can't have the lot!

One disappointing thing, however, is the fact that our Secretary, Paul, and our Treasurer John, VK7KCC, are both not re-nominating for personal reasons. We have been very fortunate this year to have had them in these positions doing a very efficient job and we will miss them on Council. Thank you very sincerely, chaps, for your help.

We are pleased to welcome to Tasmania 3A2LU, John, a previous resident of Monaco who now holds the call VK7LU. We win some - lose some - we are saddened by the death of Bruno Fritsche, VK7BFF, recently. Bruno had one time been Northern Branch Secretary.

All the communications for Rally Tasmania, held in early March, were handled by the Northwest branch members with the assistance of some very welcome southerners.

Two of our members, VK7XR, Andrew, and VK7KY, Max, were the first on the scene of the horrific accident with two of the competitors killed instantly when their car left the road and ploughed into a tree. It was not a nice situation for these two hams.

The southern branch is involved with Targa Tasmania later in the year.

Cheers for now from Ron VK7RN.

DXCC Status of 9U Burundi Contacts

OVER THE YEARS since 1994, the DXCC Desk has received several pieces of documentation for operations from 9U, Burundi. This documentation was accompanied by licence copies, complete with stamps and signatures. However, the DXCC Desk has heard rumours that these documents were in fact forgeries, and not authentic documents.

Due to the fact that the operators were still inside the country, and that we did not want to take action that could possibly cause them physical harm, and we knew we would be able to purge these contacts from DXCC records if this was found to be true, cards were accepted until we had the opportunity to investigate after the operators left the country.

The situation came to a head earlier than we expected. The Director General of ONATEL, the communications authorities in Burundi, contacted us by fax inquiring as to whether we had seen licences from Burundi. After several faxes back and forth, they informed us that the licences were forgeries.

The signature on the document was that of an official who had not been in that position for some time. The operators were saved from any real punishment other than being expelled from the country, and the entire incident is under investigation by their employer.

Since that time, the DXCC Desk has been rejecting cards for those operations concerned.

As soon as it is possible for the DXCC computer program to do so, all contacts from those operations will be purged from the DXCC database. We expect that will happen before March, 1999. This affects all operations since 1994 using a 9U prefix.

The submission of forged documentation is a clear violation of DXCC Section 1, Basic Rule 7, and also Rule 12 (a).

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Amateur Radio

Supporting the community

POUNDING BRASS

S P Smith

9 Peak Street
Bateau Bay NSW 2261
02 4334 7743

I HAVE RECEIVED a number of requests from readers in relation to the American made "Bencher Paddles" currently sold in Australia.

Rather than corresponding to each of you individually, the information is in this month's column.

Bugs were all the rage for operators who sought to send at speeds greater than could be achieved with the simple hand key.

The 1950s was the decade of the bugs' demise.

These mechanical marvels were soon to be replaced by the paddle and electronic keyer circuits which were to revolutionise code sending speeds.

Keys of the time had a pivoted shaft held in bearings. Early paddle designs copied the vertical bug mechanical mechanism which was quite complex to adjust and took some time to master.

Joseph A Hills W8FYO from Ohio was to revolutionise paddle design.

His radical design was a single paddle mounted on a ring which rested on two bearings which could be pivoted from side to side. The ring was pulled onto the two bearings by means of a spring. He called his design the "FYO Single Lever Paddle."

Hal Communication Corp changed Hill's design by splitting the ring in two halves, each half fitted with a lever. This design was on the market for only two years, 1975 - 76.

Other manufacturers followed suit, Teletek in 1975 and Bencher in 1977. Hamco incorporated magnetic tensioning into their dual lever models, the "Carson and Scotia" in 1978.

Vibroplex bought out Hamco and redesigned the Scotia model and called it the "Blue Racer".

Today only Vibroplex with two models and Bencher with several models keep Joseph A Hill "FYO" design alive.

With this article I will only concentrate on the Bencher range.

Bencher paddles are offered in two types: the Iambic BY series which consists of four models BY-1 to BY-4 and the non-Iambic ST series, again consisting of four models.

We will look at the BY dual lever range of paddles. The mechanism is mounted on a solid steel base, 10cm X 9.4cm, the total weight of the paddle being 1.25kg. Four

finished options are available:

BY-1 Black base with chrome mechanism

BY-2 All chrome base and mechanism

BY-3 Black base with gold plated mechanism

BY-4 Deluxe model being completely gold-plated.

Key adjustments

Keyer lever tension adjustment is achieved by varying the length of a small 17mm screw attached to spring on each of the split rings. The lightest touch, or minimum tension is achieved with these screws all the way in. I measured the lever tension at 52g. To increase the tension turn the screw anticlockwise fully out the lever tension measured 152g.

Next adjust the contact gap. The contact gap is individually adjusted to each lever by the position of a 20mm long contact screw which is fixed to a split vertical post.

The contact screw is held in place by a small 8mm Allen screw which, when tightened, draws in the top section of the split vertical post together and prevents the contact screw from moving.

The maximum amount of horizontal movement of the contact screw is about 4mm, being flush with the split vertical post (maximum gap) to contacting the contact on the contact paddle bracket (no gap).

A good rule is to adjust the contact gap to about 1 - 1.5mm, approximately the thickness of a business card.

Contact points are solid silver with a gold plating requiring little or no cleaning under normal operating conditions.

After some months the contacts should be inspected and cleaned if necessary. Run a small business card through the contacts a number of times until clean.

Under no circumstances use wet/dry paper, sand paper or file as this will remove the protective coating from the contacts.

Some points to look for:

When I first purchased my BY-1 model, I found that the split vertical post had moved somewhat and that the contact screw face was not in line with the contact paddle bracket.

To rectify this, I loosened the split vertical post screw underneath the base and moved the split vertical post either right or left until the contacts were aligned then retightened the screw (an easy adjustment).

Another problem encountered is similar to the one I just mentioned, except the contacts don't line up and are not flush with one another when the contact screw is adjusted all the way in (no gap).

Even moving the split vertical post small amounts left and right cannot rectify this problem.

The contact paddle bracket must be bent to correct this error, but take care when bending that no damage to the rest of the mechanism happens. Use long nose pliers for this adjustment — one to hold the contact paddle bracket steady and other to do the bending.

Adjustment should be checked every so often depending on how often you use the paddle. Springs should be replaced every few years.

If you don't do much paddle operating remove the tension off the springs.

It only takes a few moments to adjust your paddle and get on air. I know some operators that apply Loktite to all screws. This permanently sets the paddle. (I don't recommend this to beginners).

If you have any further questions please contact me.

See you next month.

Steve Smith VK2SPS
ar

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or service to sell
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EDUCATION

Brenda M Edmonds, VK3KT
PO Box 445, BLACKBURN 3130

There still seems to be some confusion regarding the resource material required for the Regulations examination. This material is no longer published in the brochures RIB 70, 71 and 72. Instead, all is available on the ACA Web pages and should be down loaded from there. If you do not have access to the Internet and World Wide Web, you can obtain the material from the local ACA State Office.

You will need the following publications:
Amateur Examinations (this one is not examinable)

Amateur Licence Information Paper
Amateur Operating Procedures
Radiocommunications Licence
Conditions (Amateur Licence)
Determination
Amateur Visiting Australia.

(There are also minor bits such as definitions from other papers and the ACA considers that every amateur should have a copy of the Radio-communications Act!).

This unfortunately adds up to a fair pile of paper (about 80 pages), which is very off-putting for a newcomer to the hobby.

The size of the pile explains why the WIA Federal Office can no longer send out free copies of the information to those who enquire.

Another potential problem is that the ACA retains the right to modify the content of the publications as necessary.

So if you have an early copy of some of the papers, it may pay to check it against the current copy. At least they are putting a "Last edited" date on most of the papers.

The "Amateur Examinations" paper

above contains the syllabuses for both levels of Theory and for the Regulations examination.

These syllabuses are still the subject of negotiations between the WIA and the ACA, but current examination papers are based on them. This is the first time that an official Regulations syllabus has been published.

Items included that have not previously been considered as examinable refer to some of the ITU Radio Regulations that pertain to amateur operations and the use of amateur bands in national emergencies.

It is interesting to note that the importance of the sections on Emergency Procedures has been down-graded by the ACA.

This reflects the extensive development of other communications networks such as mobile phones, global positioning systems, and satellites.

The *Radiocommunications Act 1992* is currently under review. The WIA has presented a submission to the Department of Communications, Information Technology and the Arts in response to a circulated discussion paper.

Members will be kept informed of developments.

On Examinations

Bob Harper VK4KNH
Dip. T. (TAFE), B.Tech.(Eng.)

The curriculum and examination system for the Amateur Radio service has been of great interest to me for some time. I have taught many classes over the past twenty years or so, many as a full time TAFE Teacher. I have therefore looked at the syllabus in some depth, especially the CW side, and believe that there are several improvements that could or should be made. I personally see no need for a CW test at all. The CW test as it is, is an invalid test for the skills supposedly being graded. But more on this point later.

I have had what I believe to be a great deal of experience in writing and assessing examination instruments and in measuring their effectiveness for electronics subjects.

In answer to some of your committee thoughts/points:

(a) Two examination papers are required, as there are two syllabi. It is not practical to create one test instrument that addresses two different syllabi. Many professional institutions have tried and as far as I am aware none have found success. It may be possible however to make one syllabus that addresses the different competencies required in such a manner that a test can be offered with

two parts: - the main part relevant to the competencies of both levels and an appended part that addresses the higher level only. But should there be two levels at all? That is another question.

(b) Practical testing requires far greater resources than the WIA would be prepared to supply and guarantee. It also requires greater levels of expertise in the examiner. It is very difficult to ensure that the test is not completed or assisted inadvertently by the examiner and indeed candidates could well complain that others received more assistance than they did; - a can of worms and smelly ones at that.

(c) The educational reasons for the 70% pass mark are valid but would take a lot of space to explain and should now be increased to 80% in line with Australian Competency Based Assessment guidelines. The test questions must, as a matter of course, be reviewed to reflect such a change. Has any assessment been done on the assessment materials as yet; I assume not or at least not by education professionals.

(d) Consider as an option to practical tests, a learner's permit; particularly in the case of CW. The candidate would be required to pass a Theory, Regulations and Operation Procedures test. They would then be issued with a temporary licence for twelve months during which time they are required to log a number of local and DX stations on SSB and CW and to receive QSL reports from each. When the required number have been received they would be submitted to a divisional committee for approval and, providing that no adverse reports of on-air behaviour are received, the candidate is granted privileges commensurate with the theory and practical levels.

(e) The regulations test is today more important than the theory test. There are so many black-box operators out there! Look on it as a driver's road rules test. That does not imply however that the current test is valid. There have been many doubtful questions over the years and many with more than one answer. Personally I would make the regulations an open book test with each candidate given a set time to answer a series of questions directly from the regulations book (Pamphlet?).

(f) A "declaration of intent" to comply with the regs, as suggested, assumes that the operator has (a) seen the regs, (b) read them, (c) understands them and (d) accepts them. Signing your licence application already suggests that and it still cannot guarantee that the operator knows anything about them. There must be a regs exam.

Multi-choice questions are hard to generate but easy to mark. That is why they are used so often where non-experts undertake the task of marking. Eg drivers licence tests. Well-written questions require experts with knowledge of testing theory as well as content theory.

You have not experienced any serious questioning of your procedures as yet but the wording of a single question could result in court challenges if a candidate has the money to spend. In CBT there should be one answer that is clearly correct and three (or more) that are clearly not correct. "More correct than the others" is very difficult to prove legally.

A bank of questions is the way to go and, if well written, can be freely given

out to candidates for study purposes. (Old time teachers choke on that concept.)

(g) Whether 50 questions are appropriate or not depends on the body of material to be tested and the depth of knowledge required. On the one hand I could see 50 Novice level questions followed by 50 full grade questions still not satisfying a syllabus. I expect however that a test of 100 questions, comprising of 50 general, 25 advanced and 25 regulations could be designed to cover the syllabus content adequately.

The structure of Amateur Radio is now quite complex with too many levels of variation. I would pursue a simplification to two levels with possible endorsements for CW proficiency etc. A general level based around "Novice" level skills and privileges and an advanced level based on "Full Call" skills and privileges. Operation on HF should be available to all amateurs but perhaps with an endorsement for those with recognised CW skills. CW endorsement based on the learners permit system outlined above would allow those operators access to the CW only portions of the bands.

CW is indeed a part of our heritage, but one

that should not hang like a noose around our necks. If CW is to survive it can only survive as a nostalgic means of communication practiced by loving historians. You cannot force people to like it or accept it and will not attract members who do not agree with your politics. CW has no further place in commercial ventures and it will be the downfall of the Amateur Radio Service if it remains as a requirement for what is now essentially, a hobby licence.

I hope I have not crossed swords with anybody on the issues above but I understand that some run on emotions rather than logic. If so, it was not my intention to provoke.

I did, several years ago, go over the syllabi and write the content into the Qld TAFE CBT format. I will search out a copy, which I assume is archived somewhere in my materials, and send it to Brenda as it contains matters on CBT, competencies to be achieved, assessment, format of the tests etc. It was never submitted, which was a shame. Qld. TAFE no longer recognises any Amateur Radio courses other than perhaps adult hobby classes. If submitted and accepted at the time, they may have been accepted Australia wide by the other TAFE systems.

Now we would have to pay for such a basic privilege.



Radio and Communications

INCORPORATING AMATEUR RADIO ACTION AND CB ACTION

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The amateur bands have faced pressure over the years, but the latest arrival on our bands is different. We take several pages in our April issue to fully examine the impact of LIPDs on the 70cm band

— radios which *anybody* can use on our band, with no licence required at all.

Do not miss this! Meanwhile, at left is a mini quad with attitude! Build it!

April's R&C is vital reading for all Australian amateur radio operators! Don't miss any of these great stories...

- **HF ANTENNAS:** Steve Ireland, VK6VZ, describes a compact quad which really pulls in the rare DX...
- **THE PHASE-LOCKED LOOP:** Ron Bertrand, VK2DQ looks at the PLL, and explains it fully but clearly.
- **A 22-GALLON ANTENNA:** A construction story with a difference ... you start with a 44-gallon drum!!
- **HOW TO CONQUER THE MORSE CODE:** It is possible for almost anyone, reports Greg Towells, VK2RQ
- **A SIMPLE 6M OMNI ANTENNA:** Like so many other designs, you start with a CB base station ...
- *As usual, we have our three DX columns, mods and lots more ... the best stories and regulars every month*

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CONTESTS

Ian Godsil VK3DID,

57 Nepean Highway, Aspendale, 3195

Apr 3/4	SP DX Contest	(CW/Phone)	(Mar 99)
Apr 9/11	JA DX CW Contest	(High Band)	(Dec 98)
Apr 10/11	King of Spain DX Contest	(CW/Phone)	
Apr 17	Australian Postcode Contest	(CW/SSB)	(Mar 99)
Apr 17/18	Holyland DX Contest	(CW/Phone)	(Mar 99)
Apr 24/25	Helvetia DX Contest	(CW/Phone)	(Mar 99)
Apr 24/25	SP RTTY Contest		(Mar 99)
May 1/2	ARI International DX Contest	(CW/SSB/RTTY)	(Apr 99)
May 8/9	CQ-M International DX Contest	(CW/SSB/SSTV)	(Apr 99)
May 15/16	Sangster Shield NZART	(CW)	(Apr 99)
May 29/30	CQ WW WPX Contest	(CW)	(Feb 99)
Jun 5/6	IARU region 1 Field Day	(CW)	
Jun 6	Portugal Day Contest	(SSB)	
Jun 12	QRP Day Contest	(CW)	(Apr 99)
Jun 12	Asia-Pacific Sprint	(SSB)	(Jan 99)
Jun 12/13	ANARTS RTTY Contest		
Jun 12/13	South America WW Contest	(CW)	
Jun 19/20	VK Novice Contest	(CW/Phone)	
Jun 19/20	All Asia DX Contest	(CW)	
Jun 26/27	ARRL Field Day		
Jun 26/27	Marconi Memorial Contest	(CW)	

Results ALARA Contest November 1998

From Marilyn VK3DMS

CALL	NAME	SCORE	AWARD
VK4SJ	June	641	Top score overall, top phone, top VK YL, top VK4 member
FK8FA	Aimee	318	Top DX YL, top Pac. is. memb.
VK3DYL	Gwen	276	Check log
WN6HYX	May	210(96 CW)	Top DX YL CW, top US non-memb.
VK5CTY	Christine	180	Top VK5 member
VK3AGC	Judy	163(8 CW)	Top VK3 memb.
VK4VR	Val	161	
VK6DE	Bev	150	Top VK6 member
ZL1WA	Alma	149	Top ZL member
VK5YG	Meg	145	
VK4AOE	Margaret	113	
ZL1ALK	Celia	108	
VK3DMS	Marilyn	105	Check log
VK3DYF	Bron	99	
VK5BMT	Maria	88	
ZL3AHT	Sue	76	
VK2DDB	Dot	65	Top VK2 member
VK3DVT	Valda	63	
VK3MGZ	John	50	Top VK OM
ZL1BIZ	Elva	50	
VK5AIM	Steve	35	
VK3ALD	Len	20	
VK3DID	Ian	10	
VK8A	Alan	5	

Everyone seems happy with the change of rules for repeat contests.

Conditions were poor during the day, but the 80-metre band at night was reasonable.

It was very disappointing that only one VK girl made CW contacts, even though Mavis VK3KS, Ivor VK3XB and Ian VK3DID were calling throughout the day. Come on girls - give it a go next year. Let's keep the spirit of VK2FV alive into the new century!

Congratulations to June VK4SJ, Aimee FK8FA and the OMs who are always there to give us points, and especially to Len VK3ALD. 73 de Marilyn VK3DMS.

Harry Angel Memorial Sprint

1100z - 1246z Sun 25 April, 1999

This is a new Contest to remember VK's oldest licensed operator, Harry Angel. Please note the time length of the Contest - 106 minutes, Harry's age when he died last year. It is open to all appropriately qualified HF operators.

Object is to make as many contacts as possible on the 80 metre band, using modes CW and SSB.

Greetings to all contesters.

I hope that the year has settled down well for you all and that you are preparing for our VK/ZL contest season.

In January I raised several issues with you for consideration, principally the issue of the definition of Single Operator.

I would like to report that three replies were received and I thank those operators for their concern.

In the light of these the feeling is that we should try to be uniform as much as possible with Regions 1 and 2.

Single Operator means just that - no assistance of any type. However, I felt that there would be no objection to the inclusion of a Single Operator Assisted category for those who can handle spotting nets and other modern aids.

There were no specific comments on electronic log submission; however, I ask all Contest Managers in VK to give serious consideration to accepting results via disks and e-mail as much as possible.

Yes I know that some of you are, as I am, in the middle age group and not so familiar

with computers.

BUT

Windows and its offshoots can be learned. I had a dreadful time last year when I took on this job, but I am determined not to let it beat me! I feel that we must remember that a great many genuinely interested contesters use computers as an integral part of shack operations. How easy can it be to just send the data from the machine to the Manager?

Does anyone have any logging programs specifically for VK/ZL contests? If so, please let me know.

Finally, may I draw your attention to a new Sprint Contest to mark the life of the late Harry Angel VK4HA? Details below. Please give this your special support, even if you are not a regular contesteer, so that the inaugural event can be really successful.

Thanks this month to VK4VW SM3CER VK3DMS VK2ZI VK3ABP ZL3KR

73 de Ian VK3DID

Categories: Single Operator (CW, Phone, Mixed) and SWL.

Frequencies: CW: 3500 - 3700 kHz, Phone: 3535 - 3700 kHz. Contacts in DX window not permitted. Exchange RS(T) and serial number; revert to 001 if 999 reached.

Score two points per CW QSO and one point per Phone QSO.

Stations may be worked once only per mode.

Logs must show time UTC, callsign worked (both callsigns for SWLs), mode, RS(T), serial numbers sent and received for each QSO.

Send summary sheet showing name and date of Contest, name and callsign of entrant, category entered, address, equipment used, points claimed and a signed declaration that the rules and spirit of the Contest were observed.

Send logs to

Harry Angel Sprint,
PO Box 171, Caboolture,
Queensland, 4510
by Friday, 28 May 1999.
Logs may also be sent by e-mail to:
<vk4vw@qsl.net>

Sangster Shield NZART

0800z - 1100z Sat 15 May/Sun 16 May

Object is to contact as many ZLs as possible. All power levels permitted, but serious competitors for the Sangster Shield must not exceed five watts o/p.

Band: 80 m.

Category: Single Operator.

Mode: CW only.

Repeat contacts may be made each half-hour, with at least five minutes between repeats with the same station.

Exchange RST plus serial number beginning at 001. ZLs will send RST, branch number and power (eg 569/11/04).

Score 10 points for VK QRP to ZL QRP; five points for VK QRP to ZL QRO; five points for VK QRO to ZL QRP.

Final score is total QSO points X number of branches worked.

Send logs showing QSO details, points claimed, name and address of operator and power level to
Alan Hughes ZL3KR,
4 Exton Street,
Christchurch 8005, NZ,
before 17 June, 1999.

CQ-M DX Contest

2100z - 2100z Sat 8 May - Sun 9 May

Bands: all HF bands and satellites (no WARC).

Modes: CW; SSB; SSTV.

Categories: Single operator single band CW only, SSB only, Mixed, satellites, SSTV. S/O multi-band CW, SSB, Mixed, satellites, QRP, SSTV. Multi-operator: multi-band, single tx, mixed, SSTV. SWL: multi-band, mixed.

Exchange RST(T) and serial number beginning at 001.

Score one point with own P-150-C country; three points for QSO with another continent. SWLs score one point for log of one station; three points for complete QSO.

Multippliers: each country in P-150-C list counts as a multiplier once only per band. SWLs have no multipliers.

Final score is total QSO points X sum of all multipliers. Various awards will be available.

Send logs by mail to:

CQ-M Contest Committee,
Krenkel Central Radio Club of Russia,
PO Box 88
Moscow Russia, by 1 July.
Logs may be sent by e-mail as ASCII text to:
<cqm99@mail.ru>. For details of P-150-C list see
http://www.mai.ru/~crc/crc_e/award/
r150s_e.htm

QRP Day Contest Rules

0700z - 1200z Sat 12 June 1999

Open to all CW operators, the object is to work as many stations as possible.

Category: Single Operator only.

Sections: (i) VK, ZL, P29 (ii) outside the above call areas.

Mode: CW only.

Bands: all HF bands (no WARC).

Exchange: RST plus serial number beginning at 001 and incrementing by one for each contact. Repeat contacts on same band: In order to make greater use of available band space and time, repeat contacts with the same station will be allowed with a minimum of two (2) hours between contacts.

Scoring: the object is to score as many points as possible in your section.

Stations within VK/ZL/P29 score

VK/ZL/P29 contacts	1 point
Outside VK/ZL/P29	3 points

Stations outside VK/ZL/P29 score

VK/ZL/P29 contacts	3 points
Outside VK/ZL/P29	1 point

All contacts made with an homebrew transmitter or transceiver score double points.
Final Score is the sum of the total QSO points. Except for the use of homebrew equipment (see above), no multipliers apply.

Certificates:

(i) the first three place getters in each section,

(ii) the top scorer on each band (if the entrant is not already a placegetter).

General: any station claiming to operate QRP MUST NOT exceed a maximum of five watts carrier to the antenna and should add /QRP after its callsign.

Logs showing contacts and points claimed, together with a full description of equipment used, should be sent to:

Ron Everingham VK4EV,
30 Hunter Street,
Evertown Park,
Queensland, 4053
No later than 10 July 1999.

ARI International DX Contest

2000z Sat 1 May - 2000z Sun 2 May

Object of this contest is for anyone to work anyone else.

Bands: all HF bands (no WARC). 10 minutes rule applies.

Modes: CW, SSB, RTTY & Mixed.

Categories: Single operator CW, SSB, RTTY or Mixed; Multi-operator single tx mixed; SWL single operator mixed; SWL.

Exchange RS(T) and serial number beginning at 001. Italian stations will send RS(T) plus a two-letter province code. Multipliers are each Italian province (103) plus each DXCC country (except I and IS0).

Count each multiplier once only per band. QSOs with own country count as multipliers.

Score 0 points for QSOs with own country, three points for QSOs with stations on different continents, 10 points for QSOs with Italian stations. Stations may be contacted once on each band on each mode.

Final score is total QSO points X total multipliers. SWLs must log both callsigns. Separate logs for each band must show all QSO data.

Send logs with summary sheet showing times UTC, callsign, names and addresses of all operators and signed declaration to:

ARI Contest Manager,
PO Box 1-27043
BRONI (PV) Italy.

Logs may also be sent by disk in N6TR, K1EA, E1SD1 and ASCII formats or in ASCII (or attached files) by e-mail to: <ari@contesting.com>. Various awards will be issued.

ALARA

Christine Taylor VK5CTY
ALARA Publicity Officer

16 Fairmont Avenue, Black Forest SA 5035

Packet: VK5CTY@VK5TTY

Weather Reports

Often the first round of the ALARA Monday Nets (on 3.80 +/- at 1000Z Daylight Saving periods, 1030Z non-Daylight Saving period) is a weather report from round the country.

As we regularly have girls from VK3, VK4 and VK5 we get quite a picture of the wide variation in weather across this vast continent. Recently, the heavy rains in Queensland have been causing concern.

We know this is their Wet Season, but this is ridiculous. One night June VK4SJ told us there was water over her patio for the first time since they had lived in that house in Caloundra, and shortly after that Bev VK4NBC had to cut her session short so she could deal with the water seeping under the window!

We were pleased when Mary VK5AMD reassured us that her daughter in Maryborough was quite safe. Her house is on high ground. We did have a giggle when we heard that the husband of the house in Maryborough had come home from buying a bottle of milk to report that it was expected that the main street would be flooded that night.

"Did you bring an extra bottle of milk, then?" he was asked. "I didn't even think of it," was the reply. Oh well, there was plenty of powdered milk in the pantry, but fresh milk would have been nice.

New houses

Many of you know June VK4SJ and Doug VK4BP and know that they are building another house.

They were not able to get though the floods to the house - June said that on that day there was a raging river where there isn't even a stream normally - but a neighbour rang to assure them that the new house was well above danger level. June and Doug are now in the new house. There are no aerials up yet, but the E-mail service is just as good there as it was in Caloundra. Further reports as they come to hand.

In Mildura, where it has been dry all the time except just before grape harvest time (though that doesn't worry Marilyn VK3DMS and Geoff VK3ACZ any more) the new house is becoming habitable. Paint is going on and furniture is arriving. It will

soon be time for House-warming parties! However, there was the story of the hurried placing of a bucket under the drain hole of the sink recently. The plumbing is not yet in place but the kitchen sink is. The dishes were being washed in a basin and stacked on the draining board - from where the water was running into the sink. Hence the rapid grab for a bucket.

No aerials are expected for a while but the phone works well for now.

News from Gwen

After much difficulty I managed to read a message from Gwen VK3DYL. (Our packet system has been misbehaving for some time, mostly because of transceivers slightly off tune, I suspect, but is going again via a C64 system).

Gwen had a lovely visit from Bev ZL10S and OM Geoff, recently. They spent some time talking about YL conventions past, present and future. Bev is running the web page for the New Zealand International YL Meet in the year 2000. The address is: <http://www.wave.co.nz/pages/osborne/gwaropge.html>

Gwen reminded me that, while the name of the venue for the YL luncheons in VK3 has changed, the place has not. The Vista Cafe is now the Melba Cafe but it is still at 215 Little Collins Street, attached to the Victoria Hotel.

The YLs start drinking cappuccino at about 10:30am but lunch is not ordered till noon. They continue with the coffee till they have to leave to catch trains and trams.

All interstate and overseas visitors are welcome to join them on the SECOND FRIDAY of the month. Please try to fit your visits to Melbourne around those Fridays. I do so, whenever I can. QSOs are fun, but 'eyeballs' are also fun.

See you there maybe on the 9th April, 14th May or 11th June. Please note, on the same day of the month the VK5 YLs also meet. Currently we meet at noon at the North Terrace entrance to the Myer Centre and we eat in the London Tavern (just to the left of the bottom of the escalator).

We also encourage all visitors to join us; the cappuccino is just as good in Adelaide as it is in Melbourne.

Good publicity for Amateur Radio

Mary VK5AMD was asked to talk about amateur radio, to the Bordertown Rotary Club. She kept them well enough entertained that they didn't ring the bell for her to stop.

Mary has been interested in radio since her father showed her a radio and named the components, when she was very small.

She listened very carefully but couldn't understand why something with so many wires in it could possibly be called a 'wireless'. Haven't we all wondered that, too?

Mary had featured in the Border News last year when she had a contact with Andy Thomas, on MIR. The Rotarians were very interested to hear all the details about that event and about Mary's meeting with Andy in Adelaide a couple of months ago.

When Mary spoke of ALARA the listeners were amazed to hear how many ladies have taken up amateur radio.

Mary can speak with authority of the benefits of amateur radio for ladies in the country, in particular.

Mary has a radio in 'listening mode' all the time on 144.500MHz and is well known to many amateurs who regularly travel the road between Melbourne and Adelaide.

I am sure the Rotarians know much more about our hobby now than they did.

Letter from Jasmin G4KFP

Jasmin was sponsored in for many years by Austine VK3YL so is well known to many YLs and OMs, too, from on air contacts.

She and her OM Bill G4IOD have had the misfortune to be both made redundant twice in four years! Jasmin now runs a Bed and Breakfast in Cleckheaton, Yorkshire, assisted by Bill when he has time from his two part-time jobs.

They do plan to have their camper up and running in September, though, when they intend to be in Cornwall to see the eclipse. That should be a major event, but a chaotic one on the narrow Cornish roads.

Jasmin says her sister, who lived down there fully expects the place to grind to a complete halt before, during and after the eclipse.

I was lucky enough to see the total eclipse a number of years ago at Tantanoola. (If we had gone on to Mount Gambier the cloud would have obscured it for us, as it did for the thousands gathered there). We saw it all in a break in the clouds.

Amazing! The difference between a partial and a total eclipse is totally surprising.

Up to 98% coverage and you need to use a pinhole camera to view it safely, so little is the loss of light.

At totality there is no argument. It is dark! If you have the chance to be in Cornwall in September, do not hesitate! I'd love to be there, too, but I hope to be at the ALARAMEET, instead.

ALARAMEET News

Many caravan route plans have been made, bookings of plane tickets, and cabin and motel rooms are happening. To date it is expected that there will be about 60 there, but we are not sure how many from ZL land will appear.

We hear they have made a bulk booking, but we don't know how large the bulk is going to be.

If you haven't made your arrangements yet, do think about it. We have a marvellous time, meeting each other again after three years, new faces and old, familiar ones.

The dates of the actual meet are October 2,3 and 4, but many will meet informally on Friday evening for dinner and quite a number will stay on for a couple of days to enjoy the extra trips Bev has planned.

For more information contact Bev VK4NBC or read the details in the ALARA Newsletter. There was an official application form in the January Newsletter. That has a list of some of the activities. Look for the form and make your plans.

ANNUAL GENERAL MEETING

Don't forget the AGM on the 4th Monday of May the 24th, on the usual frequency at 1030Z. We enjoy the long list of calls that night. Contrary to many organisations, our AGM is the best Net of the year.

If you would like to come onto the committee but hesitate to put yourself forward, please do send a nomination form to our Secretary, Tina VK5TMC. She will easily find counter signers for your form.

It is not onerous to be on the committee but it is fun. You feel you are giving something back to your hobby and helping YLs at the same time.

We always need new blood, please bleed for us.

Do you have an amateur radio story or photo with a YL point of view?

(Or even a funny tale about, or gently against an OM, who are often good sources).

Share it with

Amateur Radio

by getting it to Christine VK5CTY

How's DX

Quo Vadis DX?

FOR 18 DAYS OF OPERATION on Cocos-Keeling and Christmas Islands Erwin, HB9QR and myself, VK6CTL/HB9TL, were confronted as VK9CTL-VK9XTL and VK9CQR-VK9XQR with the mindset of nowadays DX-screamers.

We made about 750 QSOs per day and learned to handle the new dual watch technics, an ingenious invention in hand of seasoned operators. Whenever we contacted a station, immediately and mercilessly the European horde of two-character-beakers jumped in on him in the middle of his reply. The QRM mounted to an inferno.

Five or 10 kHz up the band the same thing happened again. Even on CW the horde jumped exactly 5 up, producing a solid 50 Hertz tone, against which there are no filters, even in the most modern equipment.

The result was a constant tuning for possible readable signals, which slowed down the rate of QSOs. "Spread out" seems to be unknown to these appliance operators.

On SSB, especially Latin speaking Europeans, demonstrated extreme difficulties in understanding the expression "FULL CALL" or "complete call" or "entire call".

On recent DX-peditions like H40AA, 3B7RF and timely with our DX-pedition BQ9P, various DX-operators still work like this: ...Alfa-Delta, your 59. Next ...Kilo-Alfa-Delta, your 59, your prefix please. Then ...Indigo-Zulu-Three-Kilo-Alfa-Delta, thank you. Next QSO again: ...Tango-Mike, your 59. It takes these operators two, mostly three goes for a contact. What efficient communication!

These DX-operators have cultivated this DX hungry bunch of the "Two-Character-Communication-Society" (how do you like my new concatenation?).

Full-Call-Communication, which licensing authority requests, seems to be no longer the courtesy even toward the DX-operator who makes these desired QSOs possible. These DX-mongers sit at ease at their Kilowatt station with multi-element beams crying for hours their two character tune ...Alfa-Delta ...Alfa-Delta ...ALFA-DELTA and expect the poor DX operator to waste voice power and time on them by taking multiple goes to get his complete call.

In the age of computer logs I certainly need first the complete call, in the worst case the prefix in order to enter the suffix afterwards. But with the two ending characters I absolutely don't know what to do on my computer. To communicate

efficiently I requested "FULL CALL" which sped up my operation very much and economised my voice power.

The caller only gets a report from me when he is correct in the log. I was told that my way of operation is stupid and dated.

Look at the recent H40AA DX-pedition. They exclusively gave 59 reports and that was also what is preprinted on their QSL.

That makes log keeping easier and who is interested in a report nowadays anyway. Why give an old fashioned 59 report anyway if the remark "you are in the log" would do. You may check the Internet if you are in doubt of being in the log. It seems without the Internet no major DX-pedition is up to date any more. But either way, better work them twice per band for security. I have deleted all second contacts per band, only the first receive a QSL. Try not to be the ham that gets his QSL back with the remark "not in log at this date and time".

Quo Vadis Amateur Radio?

As President of the Swiss USKA some 20 years ago, I could point to a great future for ham radio.

It was the time we got the use of the WARC bands, satellite communication was getting more momentum and reciprocal licensing opened new opportunities for relays and travel.

But now? If the IARU and its member societies do not quickly find solutions to adapt to new trends and the challenges of the Internet our future looks dim. Will we only react when we find out that our numbers are dwindling?

Why should a youngster of today learn CW, rules, regulation and band usage for an amateur licence exam, be restricted by zoning laws for the erection of antennas, face the neighbours because of BCI, TVI, interference to their Fax, video and telephone, be hampered by new regulation of radiation, hear the bedlam of DX-hungry monsters with their Two-Character-Communication and the closed societies on repeaters?

The new generation have already found QRM-free communication, at any time to anywhere with no government limitations, on the Internet. The challenge is on now.

Act quickly before the Dear Old Man (dr om) is lost in time and forgotten already at the start of next century.

See you with the young on the Internet where unrestricted communication is possible.

ar

HF PREDICTIONS

by Evan Jarman VK3ANI

34 Alandale Court, Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.

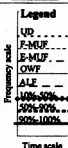
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Useable Frequency
- E-layer Maximum Useable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies; when useable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

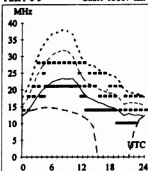
These predictions were made with the Ionospheric Prediction Service program: ASAPS version 4.

April 1999
T index: 113



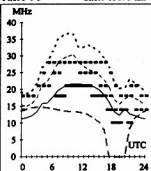
Adelaide-Moscow 318

First F 0-5 Short 13807 km



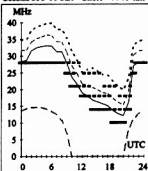
Brisbane-Berlin 321

First F 0-5 Short 15678 km



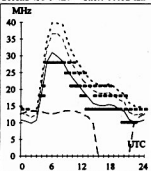
Adelaide-Osaka 257

Second 3F5-11 3E0 Short 7746 km



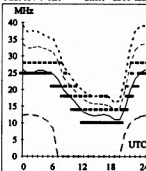
Brisbane-Johannesburg 229

Second 4F3-5 4E0 Short 11632 km



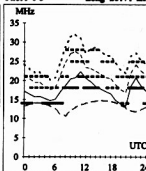
Canberra-Auckland 102

First F7-9 1E0 Short 2300 km



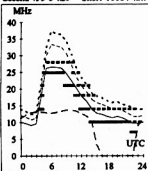
Darwin-London 145

First F 0-5 Long 26171 km



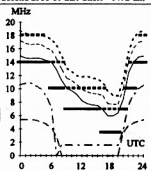
Adelaide-Pretoria 238

Second 4F5-8 4E0 Short 10064 km



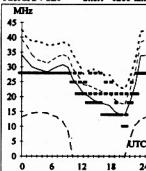
Brisbane-Noumea 70

Second 2F33-39 2E1 Short 1472 km



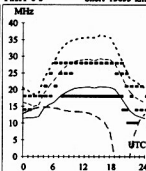
Canberra-Manila 327

First 2F2-7 2E0 Short 6286 km



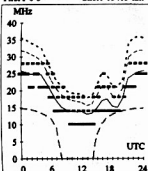
Darwin-London 325

First F 0-5 Short 13853 km



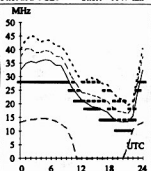
Adelaide-Seattle 51

First F 0-5 Short 13413 km



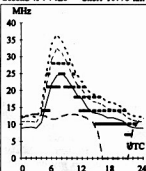
Brisbane-Singapore 293

First 2F2-6 2E0 Short 6147 km



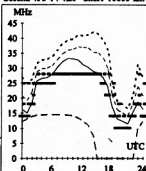
Canberra-Cape Town 219

Second 4F4-7 4E0 Short 10778 km



Darwin-Riyadh 295

Second 4F5-14 4E0 Short 10000 km



HF PREDICTIONS

Hobart-Dakar

209

Melbourne-Bangkok

312

Perth-Harare

257

Sydney-Miami

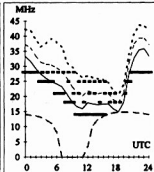
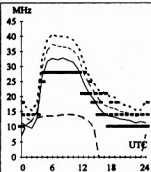
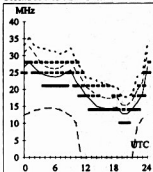
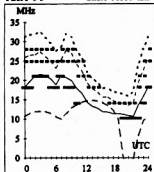
86

First F 0-5 Short 16555 km

Second 3F6-12 3E0 Short 7372 km

First 3F3-6 3E0 Short 8496 km

First F 0-5 Short 15026 km


Hobart-Lima

133

Melbourne-London

131

Perth-Maldives

303

Sydney-New Delhi

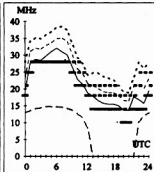
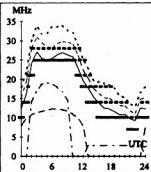
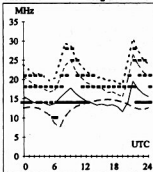
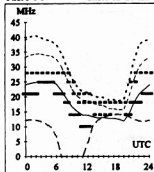
302

First F 0-5 Short 12421 km

First F 0-5 Long 23118 km

Second 3F9-15 3E0 Short 5979 km

Second 4F5-11 4E0 Short 10418 km


Hobart-New York

80

Melbourne-London

311

Perth-Rome

303

Sydney-Rio de Janeiro

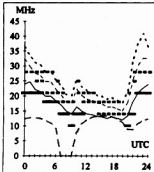
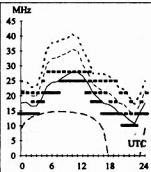
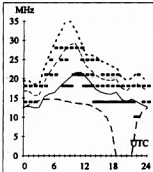
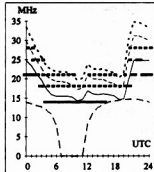
164

First F 0-5 Short 16609 km

First F 0-5 Short 16906 km

First F 0-5 Short 13340 km

First F 0-5 Short 13519 km


Hobart-Seoul

344

Melbourne-Lusaka

241

Perth-Vancouver

50

Sydney-Tokyo

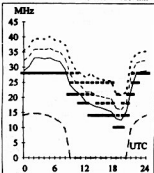
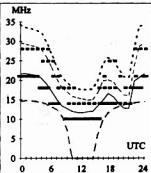
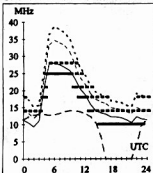
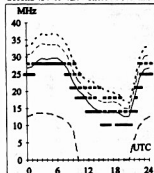
350

Second 4F7-13 4E0 Short 9175 km

Second 4F4-6 4E0 Short 11153 km

First F 0-5 Short 14823 km

Second 3F5-11 3E0 Short 7825 km



HAMADS

- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines (twenty words), plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Postal: Newsletters Unlimited, 29 Tanner Street, Richmond, 3121

Fax: 03 9428 4242 **E-mail:** news@webtime.com.au

Please only send your Hamad once

Please send Hamads by mail OR fax OR email (much preferred).

Please do not send by more than one method for any one ad or issue, it is confusing.

FOR SALE NSW

ICOM desk mic. SM20 as new in box \$190 s/n 011597 Philips FM900 2metre XCVR 99chan G.C with ex speaker and circuit \$95 John VK2CCC Ph 02 4984 9770

Kenwood TS-680S 100W HF + 6M excellent condition. Mounting Bracket manual, cartons \$890 ONO. CEC 4CH comms recorder. CMS 10441 ex-navy german made military standard cassette recorder \$200 Les VK2KLD QTHR 02 4297 2737 OR 0419 295 371

Phillips FM92 Enhanced Software. Added functions and many scanning options. Single button Anti Repeater. Full details: www.digitalgraphics.com.au/fm900pg.html Digital Graphics P/L 02 9888 3105 PO Box 281 North Ryde NSW 1670

Estate late John Gray VK2BGJ. HF Transceiver Kenwood 430S sn 3050570 Tech. Manual \$700. Kenwood AT-200 Antenna Tuner \$100. Welz SWR Meter \$100. Kenwood Communications Receiver R-1000 \$150. MFJ-1278 Multi-mode data modem \$150. YAESU FT-709 UHF Handheld \$150. YAESU dynamic desk mike YD-844 \$80. Tony VK2BOA 02 4943 8981

YAESU FT990 HF transceiver auto ATV 12/240v op manual desk/mike hand/mike ext/spr. 500/250Hz CW filters FM board. Digital memory unit. Terminal mode controller pakratt PK232MBX. Antenna vertical 6band trap hustler. Hamlog. Books. Some test equipment. All for \$1800-QTHR VK2DEB 02 9744 2601 GEORGE.

FOR SALE VIC

TS 680 HF + 6m. Good Cond \$1000. TW4100 2m-70cm good cond \$650. John VK3BIL 03 5756 2149 email vk3bil@netc.net.au

Manuals/Schematics for YAESU etc. FRDX-400rx, FL2000 Linear, FT-DX100/150 tx.rx, FT-200 (copy), w/FT220 Schematic, FT-101B, FT-75, KYOKUTO FM-2025 A/E, DRAKE SSR-1rx, Schematic for Barlow Wadley XR 800C. \$35 the lot posted. Otherwise recycled. VK3IZ QTHR 03 5156 2053 email: jupeter@net-tech.com.au

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The Amateur Radio Cover Photo Quest



Amateur Radio magazine has an Amateur Radio related photograph on the front cover of each edition. And we need some!

CURRENTLY THE STOCKS are running low and almost all that we have are either a man up an antenna mast or a sunset with a silhouette of an antenna system.

So, if you can give us a photo that we use we will give you a present in return, probably a full colour reproduction of your cover.

So please get out that camera and start shooting.

Cheers for now, Bob Harper VK4KNH.

Short Conditions

- The photographs must have an Amateur Radio interest such as famous/prominent amateurs, equipment (especially Home Brew), or events such as hamfests and competitions, Jota, etc.
- You must own the rights to the photograph and be prepared to allow Amateur Radio Magazine the right to publish the photograph. Attach a piece of paper stating: "I, (your name), the copyright owner of this photograph, grant Amateur Radio Magazine the right to publish this photograph at any time and in any manner they see fit." Then sign and date the statement.
- All photographs should be captioned with the following information: who took the photo, where and when it was taken, what the subject is and who is depicted in it.
- The photograph must be a colour print at least 3" by 5". Photographs should be clear, well focused and with good contrast. Avoid background clutter.
- All photographs will remain the property of the WIA and will be kept as the beginning of a photographic collection.
- Photographs will be assessed on their content, quality and appeal. The selection will be based on publication needs and not necessarily on technical merit. The publication committee, Editor and Production Manager will have the final say on the selection.
- Photographs should be sent to Bob Harper, PO Box 288, Beerwah 4519 and the envelopes should have a stiff insert and be marked with the words "Photographs - DO NOT FOLD"

WIA Division Directory

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address Officers	News Broadcasts	Note: All times are local. All frequencies Mhz.	Fees
VK1 ACT Division GPO Box 600 Canberra ACT 2601	President Hugh Blomings Secretary John Woolner Treasurer Les Davey	VK1YYZ VK1ET VK1LD	3,590, 146,950, 438,375, 438,325, 438,225 & 438,025 FM each Sunday from 8.00pm AEST. News text on packet BCAST@VK1BBS, http://www.vk1.wia.ampr.org & aus.radio.amateur.misc newsgroup. Send items by packet as personal message BCAST@VK1BBS or e-mail to broadcast@vk1.wia.ampr.org.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK2 NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Michael Corbin Secretary Eric Fossey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00) Web: http://ozemail.com.au/~vk2w/ e-mail: vk2w@ozemail.com.au Packet BBS: VK2W on 144.850 Mhz	VK2YC VK2EFY VK2KUR	From VK2WI 1,845, 3,595, 7,146*, 10,125, 14,170, 24,950, 28,320, 29,120, 52,120, 52,525, 144,150, 147,000, 438,525, 1273,500 (* morning only) with relays to some of 18,120, 21,170, 581,750 ATV Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup aus.radio.amateur.misc , and on packet radio.	(F) \$69.00 (G) (S) \$56.00 (X) \$41.00
VK3 Victorian Division 40G Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530) e-mail: vk3w@nt.com.au Web: http://www.tbss.com.au/~wivac/	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies, 3,615 LSB, 7,085 LSB, and FM(R)s VK3RML 146,700, VK3RMM 147,250, VK3RWG 147,225, and 70 cm FM(R)s VK3ROU 438,225, and VK3RMU 438,075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK4 Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 07 3221 9377	President Colin Gladstone Secretary Peter Harding Treasurer Alistair Elick e-mail: secretary@wiaq.powerup.com.au Web: http://www.wiaq.powerup.com.au	VK4ACG VK4JPH VK4FTL	1,825 Mhz SSB, 3,605 Mhz SSB, 7,118 Mhz SSB, 14,342 Mhz SSB, 21,175 Mhz, 28,400 Mhz SSB, 29,220 Mhz FM, 53,725 Mhz FM, 147,000 Mhz FM, 438,500 Mhz (Brisbane only), and regional VHF/UHF repeaters at 0900 hrs EAST Sunday. Repeated on 3,605 Mhz SSB & 147,000 Mhz FM at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK5 South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Ian Hunt Secretary Merv Millar Treasurer Joe Burford Web: http://www.vk5wia.ampr.org/	VK5QX VK5MX VK5UJ	1827 kHz AM, 3,550 Mhz LSB, 7,095 AM, 14,175 USB, 28,470 USB, 53,100 FM, 147,000 FM Adelaide, 146,700 FM Mid North, 146,800 FM Mildura, 146,825 FM Barossa Valley, 146,900 FM South East, 146,925 FM Central North, 147,825 FM Gawler, 438,425 FM Barossa Valley, 438,475 FM Adelaide North, ATV Ch 35 579,250 Adelaide, (NT) 3,555 USB, 7,065 USB, 10,125 USB, 146,700 FM, 0900 hrs Sunday, 3,585 Mhz and 146,675 Mhz FM Adelaide, 1930 hrs Monday.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK6 West Australian Division PO Box 10 West Perth WA 6872 Phone 08 9351 8873	President Cliff Bastin Secretary Christine Bastin Treasurer Bruce Hedland-Thomas Web: http://www.faroc.com.au/~vk6wia/ e-mail: vk6wia@faroc.com.au	VK6LZ VK6ZLZ VK6OO	146,700 FM(R), 438,525 FM(R), 29,120 FM at 0930 and 1900 hrs Sundays from Perth, relayed (morning only) on 1,865, 3,564, 3,582 (Busselton), 7,075, 14,116 (North), 14,175 (East), 21,185, 50,150; (morning and evening) 146,900(R) Mt William (Bunbury), 147,00(R) Katanning, 147,200(R) Cataby, 147,250(R) Mt Saddleback (Boddington), and 147,350(R) Busselton; (evening only) 1,865, 3,564 Mhz.	(F) \$62.00 (G) (S) \$50.00 (X) \$34.00
VK7 Tasmanian Division 24 Targett Street Scamander TAS 7250 Phone 03 6372 5305	President Ron Churcher Secretary Paul Godden Treasurer John Klop Web: http://www.wia.tasnet.net e-mail: vk7kpg@hamnet.hotnet.com.au	VK7RN VK7KPG VK7KCC	146,700 Mhz FM (VK7RHT) at 0930 hrs Sunday relayed on 147,000 (VK7RAA), 146,725 (VK7RNE), 146,825 (VK7RMD), 3,570, 7,090, 14,130, 52,100, 144,150 (Hobart), repeated Tues 3,590 at 1930 hrs.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 Mhz).				

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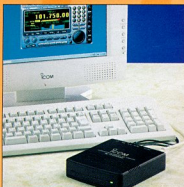
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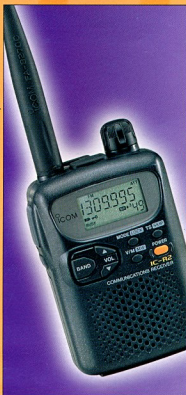
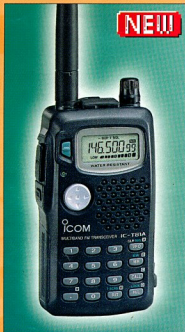
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